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(21) International Application Number: PCT/DK97/00571 (22) International Filing Date: 16 December 1997 (16.12.97) (30) Priority Data: 1449/96 19 December 1996 (19.12.96) DK 1021/97 8 September 1997 (08.09.97) DK (71) Applicant: NOVO NORDISK A/S [DK/DK]; Novo Allé, DK-2880 Bagsvaerd (DK). (72) Inventors: PEDERSEN, Anders, Hjelholt; Nybro Vaenge 58, DK-2800 Lyngby (DK). SVENDSEN, Allan; Bakkeledet 28, DK-3460 Birkerød (DK). SCHNEIDER, Palle; Rydtoften 43, DK-2750 Ballerup (DK). RASMUSSEN, Grethe; Brudedalen 1, DK-3520 Farum (DK). CHERRY, Joel, R.; C.V.E. Knuthsvej 9, DK-2100 Hellerup (DK). (74) Common Representative: NOVO NORDISK A/S; Corporate Patents, Novo Allé, DK-2880 Bagsvaerd (DK).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: LACCASE MUTANTS (57) Abstract The present invention relates to a method of designing laccase mutants with improved stability properties, which method is based on the hitherto unknown three-dimensional structure of <i>Coprinus cinereus</i> laccase.		

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LACCASE MUTANTS

FIELD OF THE INVENTION

5 The present invention relates to a method of designing laccase mutants with improved stability properties, which method is based on the hitherto unknown three-dimensional structure of laccases.

10 BACKGROUND OF THE INVENTION

Laccase is a polyphenol oxidase (EC 1.10.3.2) which catalyses the oxidation of a variety of inorganic and aromatic compounds, particularly phenols, with the concomitant reduction of molecular
15 oxygen to water.

Laccase belongs to a family of blue copper-containing oxidases which includes ascorbate oxidase and the mammalian plasma protein ceruloplasmin. All these enzymes are multi-copper-containing proteins.

20 Because laccases are able to catalyze the oxidation of a variety of inorganic and aromatic compounds, laccases have been suggested in many potential industrial applications such as lignin modification, paper strengthening, dye transfer inhibition in detergents, phenol polymerization, hair colouring, and waste
25 water treatment. A major problem with the use of laccases are their poor storage stability at temperatures above room temperature, especially at 40°C.

In Example 1 of the present application we have tested the stability of various laccases at 40°C, and it can be seen that
30 after 2 weeks of storage the laccase activity is down to less than 50% of the initial value, and at low pH the laccase activity after 2 weeks is zero. For many purposes such a decrease is unacceptable, so it is the purpose of the present invention to create laccase variants with improved stability by using the
35 information of a three-dimensional structure of a *Coprinus cinereus* laccase. No three-dimensional structural information has been available for a laccase before.

BRIEF DISCLOSURE OF THE INVENTION

The three-dimensional structure of a laccase has now been elucidated. On the basis of an analysis of said structure it is possible to identify structural parts or specific amino acid residues which from structural or functional considerations appear to be important for the stability of a laccase.

Furthermore, when comparing the three-dimensional structure of the *Coprinus* laccase structure with known amino acid sequences of various laccases, it has been found that some similarities exist between the sequences. The present invention is based on these findings.

Accordingly, in a first aspect the invention relates to a method of constructing a variant of a parent *Coprinus* laccase, which variant has laccase activity and improved stability as compared to said parent laccase, which method comprises

i) analysing the three-dimensional structure of the parent *Coprinus* laccase to identify at least one amino acid residue or at least one structural part of the *Coprinus* laccase structure, which amino acid residue or structural part is believed to be of relevance for altering the stability of the parent *Coprinus* laccase (as evaluated on the basis of structural or functional considerations),

ii) constructing a *Coprinus* laccase variant, which as compared to the parent *Coprinus* laccase, has been modified in the amino acid residue or structural part identified in i) so as to alter the stability, and, optionally,

iii) testing the resulting *Coprinus* laccase variant with respect to stability.

In a second aspect the present invention relates to a method of constructing a variant of a parent *Coprinus*-like laccase, which variant has laccase activity and improved stability as compared to said parent laccase, which method comprises

i) comparing the three-dimensional amino acid structure of the

Coprinus laccase with an amino acid sequence of a *Coprinus*-like laccase,

- ii) identifying a part of the *Coprinus*-like laccase amino acid sequence which is different from the *Coprinus* laccase amino acid sequence and which from structural or functional considerations is contemplated to be responsible for differences in the stability of the *Coprinus* and *Coprinus*-like laccase,
- iii) modifying the part of the *Coprinus*-like laccase identified in ii) whereby a *Coprinus*-like laccase variant is obtained, which has an improved stability as compared to the parent *Coprinus*-like laccase, and optionally,
- iv) testing the resulting *Coprinus*-like laccase variant with respect to stability.

In still further aspects the invention relates to variants of a *Coprinus* laccase and of *Coprinus*-like laccases, DNA encoding such variants and methods of preparing the variants. Finally, the invention relates to the use of the variants for various industrial purposes.

DETAILED DISCLOSURE OF THE INVENTION

25

The *Coprinus*-like laccases

A number of laccases produced by different fungi are homologous on the amino acid level. For instance, when using the homology percent obtained from UWGCG program using the GAP program with the default parameters (penalties: gap weight=3.0, length weight=0.1; WISCONSIN PACKAGE Version 8.1-UNIX, August 1995, Genetics Computer Group, 575 Science Drive, Madison, Wisconsin, USA 53711) the following homology was found:

Coprinus cinereus laccase comprising the amino acid sequence shown in SEQ ID No. 1: 100%;

Polyporus pinsitus (I) laccase comprising the amino acid sequence

shown in SEQ ID No. 2: 74.4%;
Polyporus pinsitus (II) laccase comprising the amino acid
sequence shown in SEQ ID No. 3: 73.8%;
Phlebia radiata laccase comprising the amino acid sequence shown
5 in SEQ ID No. 4: 69.9% ;
Rhizoctonia solani (I) laccase comprising the amino acid sequence
shown in SEQ ID No. 5: 64.8%;
Rhizoctonia solani (II) laccase comprising the amino acid
sequence shown in SEQ ID No. 6: 63.0%;
10 *Rhizoctonia solani* (III) laccase comprising the amino acid
sequence shown in SEQ ID No. 7: 61.0%;
Rhizoctonia solani (IV) laccase comprising the amino acid
sequence shown in SEQ ID No. 8: 59.7%;
Scytalidium thermophilum laccase comprising the amino acid
15 sequence shown in SEQ ID No. 9: 57.4%;
Myceliophthora thermophila laccase comprising the amino acid
sequence shown in SEQ ID No. 10: 56.5%.

Because of the homology found between the above mentioned
20 laccases, they are considered to belong to the same class of
laccases, namely the class of "Coprinus-like laccases".

Accordingly, in the present context, the term "Coprinus-like
laccase" is intended to indicate a laccase which, on the amino
acid level, displays a homology of at least 50% and less than
25 100% to the *Coprinus cinereus* laccase SEQ ID NO 1, or at least
55% and less than 100% to the *Coprinus cinereus* laccase SEQ ID NO
1, or at least 60% and less than 100% to the *Coprinus cinereus*
laccase SEQ ID NO 1, or at least 65% and less than 100% to the
Coprinus cinereus laccase SEQ ID NO 1, or at least 70% and less
30 than 100% to the *Coprinus cinereus* laccase SEQ ID NO 1, or at
least 75% and less than 100% to the *Coprinus cinereus* laccase SEQ
ID NO 1, or at least 80% and less than 100% to the *Coprinus*
cinereus laccase SEQ ID NO 1, or at least 85% and less than 100%
to the *Coprinus cinereus* laccase SEQ ID NO 1, or at least 90% and
35 less than 100% to the *Coprinus cinereus* laccase SEQ ID NO 1, or

at least 95% and less than 100% to the *Coprinus cinereus* laccase SEQ ID NO 1.

In the present context, "derived from" is intended not only to indicate a laccase produced or producible by a strain of the 5 organism in question, but also a laccase encoded by a DNA sequence isolated from such strain and produced in a host organism containing said DNA sequence. Finally, the term is intended to indicate a laccase which is encoded by a DNA sequence of synthetic and/or cDNA origin and which has the identifying 10 characteristics of the laccase in question.

The three-dimensional *Coprinus* laccase structure

The *Coprinus* laccase which was used to elucidate the three-dimensional structure forming the basis for the present invention 15 consists of the 539 amino acids derived from *Coprinus cinereus* laccase IFO 8371 as disclosed in sequence ID No. 1.

The obtained three-dimensional structure is believed to be representative for the structure of any *Coprinus*-like laccase.

The structure of the laccase was solved in accordance with 20 the principle for X-ray crystallographic methods given in "X-Ray Structure Determination", Stout, G.K. and Jensen, L.H., John Wiley & Sons, inc. NY, 1989. The structural coordinates for the solved crystal structure of the laccase at 2.2 Å resolution using the isomorphous replacement method are given in a standard PDB 25 format (Brookhaven Protein Data Base) in Appendix 1. It is to be understood that Appendix 1 forms part of the present application.

In Appendix 1 the amino acid residues of the enzyme are identified by three-letter amino acid code (capitalized letters).

The laccase structure is made up of three plastocyanin-like 30 domains. These three domains all have a similar beta-barrel fold.

3 copper atoms were observed in the three-dimensional structure:

The so-called type 1 copper ion is coordinated by two histidines and one cysteine.

35 The so-called type 2 copper of the trinuclear centre is missing in the structure disclosed in the present application.

The so-called type 3 copper consists of two type 3 copper

atoms (pair of copper atoms) bound to a total of 6 histidine ligands.

When comparing the amino acid sequence of the crystallized three-dimensional structure with *Coprinus cinereus* amino acid sequence ID No. 1 the following four differences are observed:

18 amino acids are missing from the N-terminal of the crystallized protein;

17 amino acids are missing from the C-terminal of the crystallized protein;

Q19 in sequence ID No. 1 is an A1 in the crystallized protein; and

Q243 in sequence ID No. 1 is an E225 in the crystallized protein.

Generality of structure

Because of the homology between the *Coprinus* laccase and the various *Coprinus*-like laccases, the solved structure defined by the coordinates of Appendix 1 is believed to be representative for the structure of all *Coprinus*-like laccases. A model structure of *Coprinus*-like laccases may be built on the basis of the coordinates given in Appendix 1 adapted to the laccase in question by use of an alignment between the respective amino acid sequences.

The above identified structurally characteristic parts of the *Coprinus* laccase structure may be identified in other *Coprinus*-like laccases on the basis of a model (or solved) structure of the relevant *Coprinus*-like laccase or simply on the basis of an alignment between the amino acid sequence of the *Coprinus*-like laccase in question with that of the *Coprinus* laccase used herein for identifying the amino acid residues of the respective structural elements.

Furthermore, in connection with *Coprinus* laccase variants of the invention, which are defined by modification of specific amino acid residues of the parent *Coprinus* laccase, it will be understood that variants of *Coprinus*-like laccases modified in an equivalent position (as determined from the best possible amino acid sequence alignment between the respective sequences) are

intended to be covered as well.

Methods of the invention for design of novel laccase variants

The analysis or comparison performed in step i) of the methods of the invention may be performed by use of any suitable computer programme capable of analysing and/or comparing amino acid sequences.

The structural part which is identified in step i) of the methods of the invention may be composed of one amino acid residue. However, normally the structural part comprises more than one amino acid residue, typically constituting one of the above mentioned parts of the *Coprinus* structure such as one of the copper centres.

According to the invention useful laccase variants may be modified in one or more amino acid residues present within 15 Å from any copper ion, preferably variants which are modified within 10 Å from any copper ion, in particular variants which are modified within 5 Å from any copper ion.

Determination of residues within 5Å, 10Å and 15Å from the copper ions in the three-dimensional structure: The coordinates from the appendix are read into INSIGHT program provided by BIOSYM technologies. The spatial coordinates are presented showing the bonds between the atoms. The copper atoms are presented as well as the water atoms. The program package contains a part which can be used for creating subsets. This part is used for creating a 5Å, 10Å and 15Å subset around all Cu-ions present in the structure (the command ZONE is used). The found subsets contain all residues having an atom within 5, 10 and 15Å from any of the Cu-ions present in the structure. All residues having an atom within this subset are compiled and written out by the LIST MOLECULE command.

The amino acid residues found in this way within a distance of 15 Å from a copper ion in the *Coprinus cinereus* laccase are the following (SEQ ID No 1 numbering):

M27, V46, G51, P52, I54, L64, L76, T79, S80, I81, H82, W83, H84, G85, L86, F87, Q88, R89, T91, N92, W93, A94, D95, G96, A97, D98, G99, V100, N101, Q102, C103, P104, Y113, F115, H120, G122, T123, F124, W125, Y126, H127, S128, H129, F130, G131, T132, Q133, Y134,

C135, D136, G137, L138, R139, G140, P141, M142, V143, I144, I164,
 T165, L166, A167, D168, H170, G179, A180, A181, Q182, P183, L217,
 I218, S219, L220, S221, C222, D223, P224, N225, W226, E239, V240,
 D241, G242, Q243, Q254, I255, F256, T257, G258, Q259, R260, Y261,
 5 N281, K282, F349, Q350, L351, G352, F353, S354, G356, R357, F358,
 T359, I360, N361, T363, A364, Y365, E366, S367, P368, P371, T372,
 L373, P388, S391, V392, L403, V404, V405, P406, A407, G408, V409,
 L410, G411, G412, P413, H414, P415, F416, H417, L418, H419, G420,
 H421, A422, F423, A429, K441, R442, D443, V444, V445, S446, L447,
 10 G448, V449, T450, D452, V454, I456, F458, N462, G464, P465, W466,
 F467, F468, H469, C470, H471, I472, E473, F474, H475, L476, M477,
 N478, G479, L480, A481, I482, V483, F484, A485, E486.

The amino acid residues found within a distance of 10 Å from
 a copper ion in the *Coprinus cinereus* laccase (SEQ ID No 1) are
 15 the following:

S80, I81, H82, W83, H84, G85, L86, D95, G96, A97, D98, V100,
 N101, F124, W125, Y126, H127, S128, H129, F130, G131, Y134, L138,
 R139, G140,, I218, S219, L220, S221, C222, D223, P224, D241,
 F256, T257, G258, Q259, R260, K282, L351, G352, F353, F358, T359,
 20 V405, V409, L410, G411, G412, P413, H414, P415, F416, H417, L418,
 H419, G420, D443, V444, V445, S446, L447, G448, V454, I456, F458,
 W466, F467, F468, H469, C470, H471, I472, E473, F474, H475, L476,
 M477, N478, G479, L480, A481, I482.

The amino acid residues found within a distance of 5 Å from a
 25 copper ion in the *Coprinus cinereus* laccase (SEQ ID No 1) are the
 following:

H82, H84, W125, H127, H129, G411, H414, P415, H417, H419, F467,
 H469, C470, H471, I472, H475, L480.

The 15Å/10Å/5Å regions can be found in other laccases by
 30 comparison of the modelled structures or by taking the sequence
 homology numbers.

Modifications

The modification of an amino acid residue or structural part
 35 is typically accomplished by suitable modifications of a DNA
 sequence encoding the parent enzyme in question. The term
 "modified" as used in the methods according to the invention is
 intended to have the following meaning: When used in relation to

an amino acid residue the term is intended to mean replacement of the amino acid residue in question with another amino acid residue. When used in relation to a structural part, the term is intended to mean: replacement of one or more amino acid residues of said structural part with other amino acid residues, or addition of one or more amino acid residues to said part, or deletion of one or more amino acid residues of said structural part.

The construction of the variant of interest is accomplished by cultivating a microorganism comprising a DNA sequence encoding the variant under conditions which are conducive for producing the variant, and optionally subsequently recovering the variant from the resulting culture broth. This is described in detail further below.

15

Variants with altered stability

It is contemplated that it is possible to improve the stability of a parent *Coprinus* laccase or a parent *Coprinus*-like laccase, wherein said variant is the result of a mutation, i.e. one or more amino acid residues having been deleted from, replaced or added to the parent laccase, the stability test performed as described below.

Preferred positions for mutations are the following:

25	MtL:	StL:	CcL:	PpL1:	PpL2:	PrL:	RsL4:	RsL1:	RsL2:	RsL3:
	M433	M483	-	-	-	-	-	-	-	-
	W373	W422	-	-	-	-	W411	W411	W439	-
	W136	W181	W125	W107	W107	W128	W125	W125	W125	W126
	Y145	Y190	Y134	Y116	Y116	Y137	Y134	Y134	Y134	Y135
30	M480	M530	-	-	-	-	-	-	-	-
	Y137	Y182	Y126	Y108	Y108	Y129	Y126	Y126	Y126	Y127
	Y176	Y221	Y170	Y152	Y152	Y137	Y170	Y169	Y170	Y171
	M254	M300	-	-	-	-	-	-	-	-
	-	-	M75	M57	M57	M78	M75	M75	M75	M76
35	-	-	M477	-						
				M328						
	-	M313	-	-						

W507,

wherein

CcL: *Coprinus cinereus* laccase comprising the amino acid sequence shown in SEQ ID No. 1;

5 PpL1: *Polyporus pinsitus* (I) laccase comprising the amino acid sequence shown in SEQ ID No. 2;

PpL2: *Polyporus pinsitus* (II) laccase comprising the amino acid sequence shown in SEQ ID No. 3;

PrL: *Phlebia radiata* laccase comprising the amino acid sequence shown in SEQ ID No. 4;

RsL3: *Rhizoctonia solani* (I) laccase comprising the amino acid sequence shown in SEQ ID No. 5;

RsL2: *Rhizoctonia solani* (II) laccase comprising the amino acid sequence shown in SEQ ID No. 6;

15 RsL4: *Rhizoctonia solani* (III) laccase comprising the amino acid sequence shown in SEQ ID No. 7;

RsL1: *Rhizoctonia solani* (IV) laccase comprising the amino acid sequence shown in SEQ ID No. 8;

StL: *Scytalidium thermophilum* laccase comprising the amino acid sequence shown in SEQ ID No. 9; and

MtL: *Myceliophthora thermophila* laccase comprising the amino acid sequence shown in SEQ ID No. 10.

The above shown rows have homologous positions. (-) or () =
25 not present in this laccase.

The following variants are preferred:

A variant of a parent *Coprinus* laccase, which comprises one
30 or more of the following substitutions in SEQ ID No. 1:

W125 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;

Y134 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y126 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y170 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

35 M75 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H;

M477 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

In particular a variant of a parent *Coprinus laccase*, which comprises one or more of the following substitutions in SEQ ID No. 1:

5 W125 F, H;
Y134 F;
Y126 F;
Y170 F;
M75 F, V, I, L, Q;
10 M477 F, V, I, L, Q.

A variant of a parent *Polyporus pinsitus (I)* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 2:

15 W107 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
Y116 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
Y108 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
Y152 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
M57 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H;
20 M328 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

In particular a variant of a parent *Polyporus pinsitus (I)* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 2:

25 W107 F, H;
Y116 F;
Y108 F;
Y152 F;
M57 F, V, I, L, Q;
30 M328 F, V, I, L, Q.

A variant of a parent *Polyporus pinsitus (II)* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 3:

35 W107 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
Y116 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
Y108 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y152 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 M57 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

In particular a variant of a parent *Polyporus pinsitus* (II) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 3:

W107 F, H;
 Y116 F;
 Y108 F;
 10 Y152 F;
 M57 F, V, I, L, Q.

A variant of a parent *Phlebia radiata* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 4:

W128 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
 Y137 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 Y129 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 Y137 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 20 M78 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

In particular a variant of a parent *Phlebia radiata* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 4:

25 W128 F, H;
 Y137 F;
 Y129 F;
 Y137 F;
 M78 F, V, I, L, Q.

30

A variant of a parent *Rhizoctonia solani* (I) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 5:

W126 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
 35 Y135 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 Y127 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 Y171 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

M76 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

In particular a variant of a parent *Rhizoctonia solani* (I) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 5:

W126 F, H;

Y135 F;

Y127 F;

Y171 F;

10 M76 F, V, I, L, Q.

A variant of a parent *Rhizoctonia solani* (II) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 6:

15 W439 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;

W125 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;

Y134 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y126 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y170 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

20 M75 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

In particular a variant of a parent *Rhizoctonia solani* (II) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 6:

25 W439 F, H;

W125 F, H;

Y134 F;

Y126 F;

Y170 F;

30 M75 F, V, I, L, Q.

A variant of a parent *Rhizoctonia solani* (III) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 7:

35 W411 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;

W125 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;

Y134 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y126 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
Y170 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
M75 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

- 5 In particular a variant of a parent *Rhizoctonia solani* (III) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 7:

W411 F, H;

W125 F, H;

10 Y134 F;

Y126 F;

Y170 F;

M75 F, V, I, L, Q.

- 15 A variant of a parent *Rhizoctonia solani* (IV) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 8:

W411 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;

W125 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;

20 Y134 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y126 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

Y170 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;

M75 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

- 25 In particular a variant of a parent *Rhizoctonia solani* (IV) laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 8:

W411 F, H;

W125 F, H;

30 Y134 F;

Y126 F;

Y170 F;

M75 F, V, I, L, Q.

- 35 A variant of a parent *Scytalidium thermophilum* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 9:

M483 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H;
 W422 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
 W181 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
 Y190 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 5 M530 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H;
 Y182 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 Y221 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 M300 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H;
 M313 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

10

In particular a variant of a parent *Scytalidium thermophilum* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 9:

M483 F, V, I, L, Q;
 15 W422 F, H;
 W181 F, H;
 Y190 F;
 M530 F, V, I, L, Q;
 Y182 F;
 20 Y221 F;
 M300 F, V, I, L, Q;
 M313 F, V, I, L, Q.

A variant of a parent *Myceliophthora thermophila* laccase,
 25 which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 10:

M433 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H;
 W373 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
 W136 A, V, L, I, P, F, M, G, S, T, C, Y, N, Q, D, E, K, R, H;
 30 Y145 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 M480 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H;
 Y137 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 Y176 A, V, L, I, P, F, W, G, S, T, C, M, N, Q, D, E, K, R, H;
 M254 A, V, L, I, P, F, W, G, S, T, C, Y, N, Q, D, E, K, R, H.

35

In particular a variant of a parent *Myceliophthora thermophila* laccase, which comprises a mutation in a position

corresponding to at least one of the following positions in SEQ ID No. 10:

M433 F, V, I, L, Q;

W373 F, H;

5 W136 F, H;

Y145 F;

M480 F, V, I, L, Q;

Y137 F;

Y176 F;

10 M254 F, V, I, L, Q.

Methods of preparing laccase variants

Several methods for introducing mutations into genes are known in the art. After a brief discussion of the cloning of
15 laccase-encoding DNA sequences, methods for generating mutations at specific sites within the laccase-encoding sequence will be discussed.

Cloning a DNA sequence encoding a laccase

The DNA sequence encoding a parent laccase may be isolated
20 from any cell or microorganism producing the laccase in question, using various methods well known in the art. First, a genomic DNA and/or cDNA library should be constructed using chromosomal DNA or messenger RNA from the organism that produces the laccase to be studied. Then, if the amino acid sequence of the laccase is
25 known, homologous, labelled oligonucleotide probes may be synthesized and used to identify laccase-encoding clones from a genomic library prepared from the organism in question. Alternatively, a labelled oligonucleotide probe containing sequences homologous to a known laccase gene could be used as a probe to
30 identify laccase-encoding clones, using hybridization and washing conditions of lower stringency.

A method for identifying laccase-encoding clones involves inserting cDNA into an expression vector, such as a plasmid, transforming laccase-negative fungi with the resulting cDNA
35 library, and then plating the transformed fungi onto agar containing a substrate for laccase, thereby allowing clones expressing the laccase to be identified.

Alternatively, the DNA sequence encoding the enzyme may be

prepared synthetically by established standard methods, e.g. the phosphoroamidite method. In the phosphoroamidite method, oligonucleotides are synthesized, e.g. in an automatic DNA synthesizer, purified, annealed, ligated and cloned in appropriate vectors.

5 Finally, the DNA sequence may be of mixed genomic and synthetic origin, mixed synthetic and cDNA origin or mixed genomic and cDNA origin, prepared by ligating fragments of synthetic, genomic or cDNA origin (as appropriate, the fragments corresponding to various parts of the entire DNA sequence), in accordance with
10 standard techniques. The DNA sequence may also be prepared by polymerase chain reaction (PCR) using specific primers.

Site-directed mutagenesis

Once a laccase-encoding DNA sequence has been isolated, and
15 desirable sites for mutation identified, mutations may be introduced using synthetic oligonucleotides. These oligonucleotides contain nucleotide sequences flanking the desired mutation sites; mutant nucleotides are inserted during oligonucleotide synthesis. In a specific method, a single-stranded gap of DNA, bridging the
20 laccase-encoding sequence, is created in a vector carrying the laccase gene. Then the synthetic nucleotide, bearing the desired mutation, is annealed to a homologous portion of the single-stranded DNA. The remaining gap is then filled in with T7 DNA polymerase and the construct is ligated using T4 ligase. A
25 specific example of this method is described in Morinaga et al. (1984). US 4,760,025 discloses the introduction of oligonucleotides encoding multiple mutations by performing minor alterations of the cassette. However, an even greater variety of mutations can be introduced at any one time by the Morinaga method, because
30 a multitude of oligonucleotides, of various lengths, can be introduced.

Another method of introducing mutations into laccase-encoding DNA sequences is described in Nelson and Long (1989). It involves the 3-step generation of a PCR fragment containing the desired
35 mutation introduced by using a chemically synthesized DNA strand as one of the primers in the PCR reactions. From the PCR-generated fragment, a DNA fragment carrying the mutation may be isolated by cleavage with restriction endonucleases and

reinserted into an expression plasmid.

Random mutagenesis

The random mutagenesis of a DNA sequence encoding a parent
5 laccase may conveniently be performed by use of any method known
in the art.

For instance, the random mutagenesis may be performed by use
of a suitable physical or chemical mutagenizing agent, by use of
a suitable oligonucleotide, or by subjecting the DNA sequence to
10 PCR generated mutagenesis. Furthermore, the random mutagenesis
may be performed by use of any combination of these mutagenizing
agents.

The mutagenizing agent may, e.g., be one which induces tran-
sitions, transversions, inversions, scrambling, deletions, and/or
15 insertions.

Examples of a physical or chemical mutagenizing agent
suitable for the present purpose include ultraviolet (UV) ir-
radiation, hydroxylamine, N-methyl-N'-nitro-N-nitrosoguanidine
(MNNG), O-methyl hydroxylamine, nitrous acid, ethyl methane
20 sulphonate (EMS), sodium bisulphite, formic acid, and nucleotide
analogues.

When such agents are used, the mutagenesis is typically per-
formed by incubating the DNA sequence encoding the parent enzyme
to be mutagenized in the presence of the mutagenizing agent of
25 choice under suitable conditions for the mutagenesis to take
place, and selecting for mutated DNA having the desired
properties.

When the mutagenesis is performed by the use of an oligo-
nucleotide, the oligonucleotide may be doped or spiked with the
30 three non-parent nucleotides during the synthesis of the
oligonucleotide at the positions which are to be changed. The
doping or spiking may be done so that codons for unwanted amino
acids are avoided. The doped or spiked oligonucleotide can be
incorporated into the DNA encoding the laccase enzyme by any
35 published technique, using e.g. PCR, LCR or any DNA polymerase
and ligase.

When PCR-generated mutagenesis is used, either a chemically
treated or non-treated gene encoding a parent laccase enzyme is

subjected to PCR under conditions that increase the mis-incorporation of nucleotides (Deshler 1992; Leung et al., Technique, Vol.1, 1989, pp. 11-15).

A mutator strain of *E. coli* (Fowler et al., Molec. Gen. 5 Genet., 133, 1974, pp. 179-191), *S. cerevisiae* or any other microbial organism may be used for the random mutagenesis of the DNA encoding the laccase enzyme by e.g. transforming a plasmid containing the parent enzyme into the mutator strain, growing the mutator strain with the plasmid and isolating the mutated plasmid 10 from the mutator strain. The mutated plasmid may subsequently be transformed into the expression organism.

The DNA sequence to be mutagenized may conveniently be present in a genomic or cDNA library prepared from an organism expressing the parent laccase enzyme. Alternatively, the DNA se- 15 quence may be present on a suitable vector such as a plasmid or a bacteriophage, which as such may be incubated with or otherwise exposed to the mutagenizing agent. The DNA to be mutagenized may also be present in a host cell either by being integrated in the genome of said cell or by being present on a vector harboured in 20 the cell. Finally, the DNA to be mutagenized may be in isolated form. It will be understood that the DNA sequence to be subjected to random mutagenesis is preferably a cDNA or a genomic DNA sequence.

In some cases it may be convenient to amplify the mutated DNA 25 sequence prior to the expression step or the screening step being performed. Such amplification may be performed in accordance with methods known in the art, the presently preferred method being PCR-generated amplification using oligonucleotide primers prepared on the basis of the DNA or amino acid sequence of the 30 parent enzyme.

Subsequent to the incubation with or exposure to the mutagenizing agent, the mutated DNA is expressed by culturing a suitable host cell carrying the DNA sequence under conditions allowing expression to take place. The host cell used for this 35 purpose may be one which has been transformed with the mutated DNA sequence, optionally present on a vector, or one which was carried the DNA sequence encoding the parent enzyme during the mutagenesis treatment. Examples of suitable host cells are fungal

hosts such as *Aspergillus niger* or *Aspergillus oryzae*.

The mutated DNA sequence may further comprise a DNA sequence encoding functions permitting expression of the mutated DNA sequence.

Localized random mutagenesis

The random mutagenesis may advantageously be localized to a part of the parent laccase in question. This may, e.g., be 10 advantageous when certain regions of the enzyme have been identified to be of particular importance for a given property of the enzyme, and when modified are expected to result in a variant having improved properties. Such regions may normally be identified when the tertiary structure of the parent enzyme has 15 been elucidated and related to the function of the enzyme.

The localized random mutagenesis is conveniently performed by use of PCR-generated mutagenesis techniques as described above or any other suitable technique known in the art.

Alternatively, the DNA sequence encoding the part of the DNA 20 sequence to be modified may be isolated, e.g. by being inserted into a suitable vector, and said part may subsequently be subjected to mutagenesis by use of any of the mutagenesis methods discussed above.

With respect to the screening step in the above-mentioned 25 method of the invention, this may conveniently be performed by use of aa filter assay based on the following principle:

A microorganism capable of expressing the mutated laccase enzyme of interest is incubated on a suitable medium and under suitable conditions for the enzyme to be secreted, the medium 30 being provided with a double filter comprising a first protein-binding filter and on top of that a second filter exhibiting a low protein binding capability. The microorganism is located on the second filter. Subsequent to the incubation, the first filter comprising enzymes secreted from the microorganisms is separated 35 from the second filter comprising the microorganisms. The first filter is subjected to screening for the desired enzymatic activity and the corresponding microbial colonies present on the second filter are identified.

The filter used for binding the enzymatic activity may be any protein binding filter e.g. nylon or nitrocellulose. The top filter carrying the colonies of the expression organism may be any filter that has no or low affinity for binding proteins e.g. 5 cellulose acetate or Durapore™. The filter may be pretreated with any of the conditions to be used for screening or may be treated during the detection of enzymatic activity.

The enzymatic activity may be detected by a dye, fluorescence, precipitation, pH indicator, IR-absorbance or any 10 other known technique for detection of enzymatic activity.

The detecting compound may be immobilized by any immobilizing agent, e.g., agarose, agar, gelatine, polyacrylamide, starch, filter paper, cloth; or any combination of immobilizing agents.

15 Testing of variants of the invention

The storage stability of *Coprinus* variants or *Coprinus*-like variants should be investigated at 40°C for 2 weeks at pH 5, 8 and 9.3, respectively. The stability of the parent laccase and the variants may be tested both in a liquid buffer formulation 20 and in a lyophilized form.

According to the invention the residual activity of the variants following two weeks of incubation are then compared to the residual activity of the parent laccase, and variants with an improved stability at either pH 5, 8 or 9.3 are selected.

25

Laccase activity

In the context of this invention, the laccase activity was measured using 10-(2-hydroxyethyl)-phenoxazine (HEPO) as substrate for the various laccases. HEPO was synthesized using 30 the same procedure as described for 10-(2-hydroxyethyl)-phenothiazine, (G. Cauquil in Bulletin de la Society Chimique de France, 1960, p. 1049). In the presence of oxygen laccases (E.C. 1.10.3.2) oxidize HEPO to a HEPO radical that can be monitored photometrically at 528 nm.

35 The *Coprinus cinereus* laccase was measured using 0.4 mM HEPO in 50 mM sodium acetate, pH 5.0, 0.05% TWEEN-20 at 30°C. The absorbance at 528 nm was followed for 200 s and the rate calculated from the linear part of the progress curve.

The *Myceliophthora thermophila* laccase was measured using 0.4 mM HEPO in 25 mM Tris-HCl, pH 7.5, 0.05% Tween-20 at 30 °C. The absorbance at 528 nm was followed for 200 s and the rate calculated from the linear part of the progress curve.

5 The *Polyporus pinsitus* laccase was measured using 0.4 mM HEPO in 50 mM MES-NaOH, pH 5.5. The absorbance at 528 nm was followed for 200 s and the rate calculated from the linear part of the progress curve.

10 Expression of laccase variants

According to the invention, a DNA sequence encoding the variant produced by methods described above, or by any alternative methods known in the art, can be expressed, in enzyme form, using an expression vector which typically includes control
15 sequences encoding a promoter, operator, ribosome binding site, translation initiation signal, and, optionally, a repressor gene or various activator genes.

The recombinant expression vector carrying the DNA sequence encoding a laccase variant of the invention may be any vector,
20 which may conveniently be subjected to recombinant DNA procedures, and the choice of vector will often depend on the host cell into which it is to be introduced. Thus, the vector may be an autonomously replicating vector, i.e. a vector which exists as an extrachromosomal entity, the replication of which is
25 independent of chromosomal replication, e.g. a plasmid, a bacteriophage or an extrachromosomal element, minichromosome or an artificial chromosome. Alternatively, the vector may be one which, when introduced into a host cell, is integrated into the host cell genome and replicated together with the chromosome(s)
30 into which it has been integrated.

In the vector, the DNA sequence should be operably connected to a suitable promoter sequence. The promoter may be any DNA sequence which shows transcriptional activity in the host cell of choice and may be derived from genes encoding proteins either
35 homologous or heterologous to the host cell. Examples of suitable promoters for directing the transcription of the DNA sequence encoding a laccase variant of the invention, especially in a fungal host, are those derived from the gene encoding *A. oryzae*

TAKA amylase, *Rhizomucor miehei* aspartic proteinase, *A. niger* neutral α -amylase, *A. niger* acid stable α -amylase, *A. niger* glucoamylase, *Rhizomucor miehei* lipase, *A. oryzae* alkaline protease, *A. oryzae* triose phosphate isomerase or *A. nidulans* acetamidase.

5 The expression vector of the invention may also comprise a suitable transcription terminator and, in eukaryotes, polyadenylation sequences operably connected to the DNA sequence encoding the laccase variant of the invention. Termination and polyadenylation sequences may suitably be derived from the same
10 sources as the promoter.

The vector may further comprise a DNA sequence enabling the vector to replicate in the host cell in question. Examples of such sequences are the origins of replication of plasmids pUC19, pACYC177, pUB110, pE194, pAMB1 and pIJ702.

15 The vector may also comprise a selectable marker, e.g. a gene, the product of which complements a defect in the host cell, such as one which confers antibiotic resistance such as ampicillin, kanamycin, chloramphenicol or tetracyclin resistance. Furthermore, the vector may comprise *Aspergillus* selection markers
20 such as amdS, argB, niaD and sC, a marker giving rise to hygromycin resistance, or the selection may be accomplished by co-transformation, e.g. as described in WO 91/17243.

The procedures used to ligate the DNA construct of the invention encoding a laccase variant, the promoter, terminator and
25 other elements, respectively, and to insert them into suitable vectors containing the information necessary for replication, are well known to persons skilled in the art (cf., for instance, Sambrook et al. (1989)).

The cell of the invention, either comprising a DNA construct
30 or an expression vector of the invention as defined above, is advantageously used as a host cell in the recombinant production of a laccase variant of the invention. The cell may be transformed with the DNA construct of the invention encoding the variant, conveniently by integrating the DNA construct (in one or
35 more copies) in the host chromosome. This integration is generally considered to be an advantage as the DNA sequence is more likely to be stably maintained in the cell. Integration of

the DNA constructs into the host chromosome may be performed according to conventional methods, e.g. by homologous or heterologous recombination. Alternatively, the cell may be transformed with an expression vector as described above in connection with the different types of host cells.

The cell of the invention may be a cell of a higher organism such as a mammal or an insect, but is preferably a microbial cell, e.g. a fungal cell.

The filamentous fungus may advantageously belong to a species of *Aspergillus*, e.g. *Aspergillus oryzae* or *Aspergillus niger*. Fungal cells may be transformed by a process involving protoplast formation and transformation of the protoplasts followed by regeneration of the cell wall in a manner known *per se*. A suitable procedure for transformation of *Aspergillus* host cells is described in EP 238 023.

In a yet further aspect, the present invention relates to a method of producing a laccase variant of the invention, which method comprises cultivating a host cell as described above under conditions conducive to the production of the variant and recovering the variant from the cells and/or culture medium.

The medium used to cultivate the cells may be any conventional medium suitable for growing the host cell in question and obtaining expression of the laccase variant of the invention. Suitable media are available from commercial suppliers or may be prepared according to published recipes (e.g. as described in catalogues of the American Type Culture Collection).

The laccase variant secreted from the host cells may conveniently be recovered from the culture medium by well-known procedures, including separating the cells from the medium by centrifugation or filtration, and precipitating proteinaceous components of the medium by means of a salt such as ammonium sulphate, followed by the use of chromatographic procedures such as ion exchange chromatography, affinity chromatography, or the like.

35

Industrial Applications

The laccase variants of this invention possesses valuable properties allowing for various industrial applications, in

particular lignin modification, paper strengthening, dye transfer inhibition in detergents, phenol polymerization, hair dyeing, bleaching of textiles (in particular bleaching of denim as described in WO 96/12845 and WO 96/12846) and waste water treatment. Any detergent composition normally used for enzymes may be used, e.g., the detergent compositions disclosed in WO 95/01426.

The invention is further illustrated in the following examples, which are not intended to be in any way limiting to the scope of the invention as claimed.

EXAMPLE 1

Storage stability of the wild type *Myceliophthora thermophila* and the *Polyporus pinsitus* laccases.

The storage stability of the *Myceliophthora thermophila* and the *Polyporus pinsitus* laccases was tested for 2 weeks at 40°C at pH 5, 8 and 9.3, respectively.

The laccase (1 mg/ml) was dialyzed against 0.1 M sodium acetate, pH 5, or 0.1 M Tris-maleate, pH 8, or 0.1 M Tris-maleate, pH 9.3. Following dialysis the different preparations were poured into two sets of glass vials with screw caps: one for the liquid formulation and the other one for the lyophilized form. After two weeks of incubation the enzyme activity was measured as described above and the residual activity of the enzymes was calculated in percentage using a preparation of *Myceliophthora thermophila* and *Polyporus pinsitus* kept at 4°C as references. The results are given below in Table 1 and 2.

30

Table 1 Storage stability of *Myceliophthora thermophila*

pH	Liquid formulation		Lyophilized form	
	Residual (%)	activity	Residual (%)	activity
5.0	<5		<5	
8.0	<5		<5	
9.3	35		30	

Table 2 Storage stability of *Polyporus pinsitus*

pH	Liquid formulation	Lyophilized form
	Residual activity (%)	Residual activity (%)
5.0	<5	n.d.
8.0	35	n.d.
9.3	n.d.*	n.d.

* not determined

5 EXAMPLE 2

Homology building of the *Polyporus pinsitus* 3D-structure

Using sequence homology of *Coprinus cinereus* (CcL) to other sequences, e.g., *Polyporus pinsitus*, *Coprinus*-like 3 D-structures
10 can be found.

In comparison with the *Coprinus cinereus*, used for elucidating the structure, *Polyporus pinsitus* differs in a number of residues. The model may be built using the HOMOLOGY program from BIOSYM. The program substitutes the amino acids in the
15 *Coprinus cinereus* with amino acids from *Polyporus pinsitus* in the homologous positions defined in the program as structurally conserved regions (SCR). The residues in between are built using the LOOP option with GENERATE. Using these steps a crude model
20 may be obtained which gives information of spatial interactions.

The structure can be refined using the method described in the HOMOLOGY package.

EXAMPLE 3

25 Storage stability of *Myceliophthora thermophila* variants

Laccase activity:

In this Example the *Myceliophthora thermophila* laccase variants were measured using 0.4 mM HEPO in 0.1 M Tris-maleate,
30 pH 7.5, 0.05% TWEEN-20 at 30°C. The absorbance at 528 nm was followed for 200 s and the rate calculated from the linear part

of the progress curve.

The storage stability of the *Myceliophthora thermophila* variants were tested for 4 weeks at 40°C at pH 5, 7, and 9.3, respectively. The laccase (1 mg/ml) was dialyzed against 0.1 M Tris-maleate, pH 5 or 0.1 M Tris-maleate, pH 7 or 0.1 M Tris-maleate, pH 9.3. Following dialysis the different preparations were poured into two set of glass vials with screw caps: one for the liquid formulation and the other set of glasses for lyophilization. Following two and four weeks of incubation the enzyme activity was measured as described above and the residual activity of the variants were calculated in percentage using a preparation kept at 4°C as reference.

Table 3. Storage stability of *Myceliophthora thermophila* variants, lyophilized formulation

	Residual activity, pH 5		Residual activity, pH 7		Residual activity, pH 9.2	
	2 weeks	4 weeks	2 weeks	4 weeks	2 weeks	4 weeks
wt	18	18	55	36	59	38
W136F	<5	<5	76	64	88	77
Y137F	12	<5	58	41	64	49
Y145F	<5	<5	53	20	45	51
W373F	14	14	33	19	51	36
M433I	7	<5	57	43	74	35
M480L	33	18	65	32	72	52
W507F	18	<5	72	51	68	71

In lyophilized form none of the tested variants have improved stability at pH 5. At pH 7 and pH 9.2 both W136F and W507F have increased stability. At pH 9.2 M480L is also better than wt.

Table 4. Storage stability of *Myceliophthora thermophila* variants, liquid formulation

	Residual activity, 5, 2 weeks	pH Residual activity, pH 7, 2 weeks	Residual activity, pH 9.2, 2 weeks
wt	<5	5	20
W136F	5	28	55
Y137F	<5	<5	<5
Y145F	<5	<5	<5
W373F	<5	40	<5
M433I	8	40	65
M480L	<5	<5	15
W507F	<5	<5	22

Also in the liquid formulation none of the tested variants
5 have improved stability at pH 5. At pH 7 and pH 9.2 both
W136F and M433I has increased stability. At pH7 W373F has
better stability than wt but the variant loses the stability
completely at pH 9.2.

10 Of the tested variants only W136F has increased stability in
both formulations.

Appendix 1:

SEQRES 1 A 504 GLN ILE VAL ASN SER VAL ASP THR MET THR LEU THR ASN
SEQRES 2 A 504 ALA ASN VAL SER PRO ASP GLY PHE THR ARG ALA GLY ILE
5 SEQRES 3 A 504 LEU VAL ASN GLY VAL HIS GLY PRO LEU ILE ARG GLY GLY
SEQRES 4 A 504 LYS ASN ASP ASN PHE GLU LEU ASN VAL VAL ASN ASP LEU
SEQRES 5 A 504 ASP ASN PRO THR MET LEU ARG PRO THR SER ILE HIS TRP
SEQRES 6 A 504 HIS GLY LEU PHE GLN ARG GLY THR ASN TRP ALA ASN GLY
SEQRES 7 A 504 ALA ASP GLY VAL ASN GLN CYS PRO ILE SER PRO GLY HIS
10 SEQRES 8 A 504 ALA PHE LEU TYR LYS PHE THR PRO ALA GLY HIS ALA GLY
SEQRES 9 A 504 THR PHE TRP TYR HIS SER HIS PHE GLY THR GLN TYR CYS
SEQRES 10 A 504 ASP GLY LEU ARG GLY PRO MET VAL ILE TYR ASP ASP ASN
SEQRES 11 A 504 ASP PRO HIS ALA ALA LEU TYR ASP GLU ASP ASP GLU ASN
SEQRES 12 A 504 THR ILE ILE THR LEU ALA ASP TRP TYR HIS ILE PRO ALA
15 SEQRES 13 A 504 PRO SER ILE GLN GLY ALA ALA GLN PRO ASP ALA THR LEU
SEQRES 14 A 504 ILE ASN GLY LYS GLY ARG TYR VAL GLY GLY PRO ALA ALA
SEQRES 15 A 504 GLU LEU SER ILE VAL ASN VAL GLU GLN GLY LYS LYS TYR
SEQRES 16 A 504 ARG MET ARG LEU ILE SER LEU SER CYS ASP PRO ASN TRP
SEQRES 17 A 504 GLN PHE SER ILE ASP GLY HIS GLU LEU THR ILE ILE GLU
20 SEQRES 18 A 504 VAL ASP GLY ASN LEU THR GLU PRO HIS THR VAL ASP ARG
SEQRES 19 A 504 LEU GLN ILE PHE THR GLY GLN ARG TYR SER PHE VAL LEU
SEQRES 20 A 504 ASP ALA ASN GLN PRO VAL ASP ASN TYR TRP ILE ARG ALA
SEQRES 21 A 504 GLN PRO ASN LYS GLY ARG ASN GLY LEU ALA GLY THR PHE
SEQRES 22 A 504 ALA ASN GLY VAL ASN SER ALA ILE LEU ARG TYR ALA GLY
25 SEQRES 23 A 504 ALA ALA ASN ALA ASP PRO THR THR SER ALA ASN PRO ASN
SEQRES 24 A 504 PRO ALA GLN LEU ASN GLU ALA ASP LEU HIS ALA LEU ILE
SEQRES 25 A 504 ASP PRO ALA ALA PRO GLY ILE PRO THR PRO GLY ALA ALA
SEQRES 26 A 504 ASN VAL ASN LEU ARG PHE GLN LEU GLY PHE SER GLY GLY
SEQRES 27 A 504 ARG PHE THR ILE ASN GLY THR ALA TYR GLU SER PRO SER
30 SEQRES 28 A 504 VAL PRO THR LEU LEU GLN ILE MET SER GLY ALA GLN SER
SEQRES 29 A 504 ALA ASN ASP LEU LEU PRO ALA GLY SER VAL TYR GLU LEU
SEQRES 30 A 504 PRO ARG ASN GLN VAL VAL GLU LEU VAL VAL PRO ALA GLY
SEQRES 31 A 504 VAL LEU GLY GLY PRO HIS PRO PHE HIS LEU HIS GLY HIS
SEQRES 32 A 504 ALA PHE SER VAL VAL ARG SER ALA GLY SER SER THR TYR
35 SEQRES 33 A 504 ASN PHE VAL ASN PRO VAL LYS ARG ASP VAL VAL SER LEU
SEQRES 34 A 504 GLY VAL THR GLY ASP GLU VAL THR ILE ARG PHE VAL THR
SEQRES 35 A 504 ASP ASN PRO GLY PRO TRP PHE PHE HIS CYS HIS ILE GLU
SEQRES 36 A 504 PHE HIS LEU MET ASN GLY LEU ALA ILE VAL PHE ALA GLU

SEQRES 37 A 504 ASP MET ALA ASN THR VAL ASP ALA ASN ASN PRO PRO VAL
SEQRES 38 A 504 GLU TRP ALA GLN LEU CYS GLU ILE TYR ASP ASP LEU PRO
SEQRES 39 A 504 PRO GLU ALA THR SER ILE GLN THR VAL VAL
SSBOND 1 CYS 85 CYS 487
5 SSBOND 2 CYS 117 CYS 204
CRYST 45.390 85.720 143.070 90.00 90.00 90.00 P212121
SCALE1 0.02203 0.00000 0.00000 0.00000
SCALE2 0.00000 0.01167 0.00000 0.00000
SCALE3 0.00000 0.00000 0.00699 0.00000
10 ATOM 1 N ALA A 1 0 18.748 34.495 5.326 1.00 36.36
ATOM 2 CA ALA A 1 0 19.554 35.757 5.185 1.00 35.87
ATOM 3 C ALA A 1 0 19.785 36.380 6.558 1.00 34.53
ATOM 4 O ALA A 1 0 19.248 35.884 7.577 1.00 35.40
ATOM 5 CB ALA A 1 0 19.050 36.675 4.107 1.00 36.65
15 ATOM 6 N ILE A 2 0 20.844 37.201 6.659 1.00 31.00
ATOM 7 CA ILE A 2 0 21.310 37.654 7.963 1.00 27.71
ATOM 8 C ILE A 2 0 21.368 39.165 8.117 1.00 25.19
ATOM 9 O ILE A 2 0 21.789 39.861 7.192 1.00 23.77
ATOM 10 CB ILE A 2 0 22.744 37.107 8.206 1.00 28.28
20 ATOM 11 CG1 ILE A 2 0 22.790 35.590 8.022 1.00 28.54
ATOM 12 CG2 ILE A 2 0 23.285 37.557 9.554 1.00 27.91
ATOM 13 CD1 ILE A 2 0 23.334 34.738 9.130 1.00 29.32
ATOM 14 N VAL A 3 0 20.986 39.659 9.283 1.00 22.31
ATOM 15 CA VAL A 3 0 21.093 41.092 9.540 1.00 22.78
25 ATOM 16 C VAL A 3 0 22.246 41.297 10.524 1.00 22.62
ATOM 17 O VAL A 3 0 22.460 40.556 11.467 1.00 21.74
ATOM 18 CB VAL A 3 0 19.801 41.849 9.799 1.00 23.54
ATOM 19 CG1 VAL A 3 0 18.537 40.985 9.684 1.00 21.30
ATOM 20 CG2 VAL A 3 0 19.760 42.709 11.055 1.00 21.32
30 ATOM 21 N ASN A 4 0 23.122 42.261 10.209 1.00 23.39
ATOM 22 CA ASN A 4 0 24.303 42.520 11.021 1.00 23.45
ATOM 23 C ASN A 4 0 24.002 43.517 12.126 1.00 24.44
ATOM 24 O ASN A 4 0 22.928 44.122 12.160 1.00 23.05
ATOM 25 CB ASN A 4 0 25.477 42.965 10.149 1.00 24.77
35 ATOM 26 CG ASN A 4 0 25.726 41.991 9.021 1.00 26.62
ATOM 27 OD1 ASN A 4 0 25.668 42.388 7.849 1.00 30.29
ATOM 28 ND2 ASN A 4 0 25.923 40.719 9.324 1.00 27.59
ATOM 29 N SER A 5 0 24.960 43.707 13.040 1.00 24.28

	ATOM	30	CA	SER A	5	0	24.702	44.636	14.143	1.00	25.77
	ATOM	31	C	SER A	5	0	24.595	46.090	13.701	1.00	24.41
	ATOM	32	O	SER A	5	0	23.973	46.862	14.452	1.00	23.55
	ATOM	33	CB	SER A	5	0	25.741	44.405	15.240	1.00	26.18
5	ATOM	34	OG	SER A	5	0	26.976	44.750	14.641	1.00	27.89
	ATOM	35	N	VAL A	6	0	25.104	46.517	12.539	1.00	24.01
	ATOM	36	CA	VAL A	6	0	24.770	47.863	12.096	1.00	25.06
	ATOM	37	C	VAL A	6	0	24.131	47.617	10.731	1.00	25.57
	ATOM	38	O	VAL A	6	0	24.778	47.030	9.874	1.00	28.07
10	ATOM	39	CB	VAL A	6	0	25.722	49.032	12.155	1.00	26.65
	ATOM	40	CG1	VAL A	6	0	26.937	48.759	13.025	1.00	26.73
	ATOM	41	CG2	VAL A	6	0	26.098	49.614	10.801	1.00	25.50
	ATOM	42	N	ASP A	7	0	22.848	47.952	10.605	1.00	23.82
	ATOM	43	CA	ASP A	7	0	22.173	47.543	9.369	1.00	24.07
15	ATOM	44	C	ASP A	7	0	20.794	48.170	9.276	1.00	23.66
	ATOM	45	O	ASP A	7	0	20.342	48.845	10.204	1.00	23.47
	ATOM	46	CB	ASP A	7	0	21.996	46.012	9.444	1.00	23.43
	ATOM	47	CG	ASP A	7	0	22.017	45.317	8.111	1.00	23.78
	ATOM	48	OD1	ASP A	7	0	21.805	45.937	7.055	1.00	23.74
20	ATOM	49	OD2	ASP A	7	0	22.255	44.089	8.099	1.00	24.62
	ATOM	50	N	THR A	8	0	20.155	47.881	8.158	1.00	23.88
	ATOM	51	CA	THR A	8	0	18.799	48.359	7.928	1.00	24.45
	ATOM	52	C	THR A	8	0	17.813	47.189	7.950	1.00	22.49
	ATOM	53	O	THR A	8	0	18.143	46.142	7.377	1.00	22.56
25	ATOM	54	CB	THR A	8	0	18.694	49.108	6.579	1.00	25.75
	ATOM	55	OG1	THR A	8	0	19.573	50.242	6.719	1.00	28.53
	ATOM	56	CG2	THR A	8	0	17.295	49.656	6.339	1.00	25.55
	ATOM	57	N	MET A	9	0	16.677	47.364	8.602	1.00	19.10
	ATOM	58	CA	MET A	9	0	15.650	46.311	8.616	1.00	20.47
30	ATOM	59	C	MET A	9	0	14.392	46.863	7.925	1.00	21.97
	ATOM	60	O	MET A	9	0	13.638	47.638	8.544	1.00	19.49
	ATOM	61	CB	MET A	9	0	15.308	45.871	10.022	1.00	20.49
	ATOM	62	CG	MET A	9	0	16.351	44.982	10.682	1.00	22.11
	ATOM	63	SD	MET A	9	0	16.192	44.917	12.482	1.00	24.71
35	ATOM	64	CE	MET A	9	0	14.640	44.024	12.635	1.00	22.61
	ATOM	65	N	THR A	10	0	14.246	46.516	6.641	1.00	21.81
	ATOM	66	CA	THR A	10	0	13.073	47.064	5.926	1.00	23.43
	ATOM	67	C	THR A	10	0	11.912	46.081	6.046	1.00	22.90

	ATOM	68	O	THR	A	10	0	12.056	44.890	5.719	1.00	23.55
	ATOM	69	CB	THR	A	10	0	13.390	47.384	4.459	1.00	24.69
	ATOM	70	OG1	THR	A	10	0	14.533	48.261	4.456	1.00	26.08
	ATOM	71	CG2	THR	A	10	0	12.216	48.028	3.742	1.00	23.95
5	ATOM	72	N	LEU	A	11	0	10.820	46.600	6.583	1.00	21.13
	ATOM	73	CA	LEU	A	11	0	9.615	45.836	6.846	1.00	21.10
	ATOM	74	C	LEU	A	11	0	8.607	45.957	5.709	1.00	24.58
	ATOM	75	O	LEU	A	11	0	8.124	47.056	5.358	1.00	23.89
	ATOM	76	CB	LEU	A	11	0	9.045	46.411	8.129	1.00	21.29
10	ATOM	77	CG	LEU	A	11	0	9.474	45.955	9.508	1.00	22.26
	ATOM	78	CD1	LEU	A	11	0	10.952	45.742	9.692	1.00	22.42
	ATOM	79	CD2	LEU	A	11	0	8.978	46.931	10.583	1.00	22.75
	ATOM	80	N	THR	A	12	0	8.272	44.836	5.057	1.00	24.01
	ATOM	81	CA	THR	A	12	0	7.302	44.851	3.980	1.00	24.33
15	ATOM	82	C	THR	A	12	0	6.322	43.677	4.123	1.00	25.34
	ATOM	83	O	THR	A	12	0	6.480	42.740	4.913	1.00	25.62
	ATOM	84	CB	THR	A	12	0	7.882	44.776	2.560	1.00	25.12
	ATOM	85	OG1	THR	A	12	0	8.575	43.548	2.377	1.00	24.05
	ATOM	86	CG2	THR	A	12	0	8.847	45.905	2.217	1.00	25.26
20	ATOM	87	N	ASN	A	13	0	5.261	43.760	3.335	1.00	24.09
	ATOM	88	CA	ASN	A	13	0	4.232	42.722	3.299	1.00	22.87
	ATOM	89	C	ASN	A	13	0	4.422	41.954	1.989	1.00	22.13
	ATOM	90	O	ASN	A	13	0	4.809	42.600	1.023	1.00	22.32
	ATOM	91	CB	ASN	A	13	0	2.852	43.355	3.311	1.00	21.58
25	ATOM	92	CG	ASN	A	13	0	2.526	44.060	4.607	1.00	22.50
	ATOM	93	OD1	ASN	A	13	0	2.187	45.245	4.648	1.00	22.20
	ATOM	94	ND2	ASN	A	13	0	2.615	43.306	5.705	1.00	21.81
	ATOM	95	N	ALA	A	14	0	4.218	40.655	1.985	1.00	21.00
	ATOM	96	CA	ALA	A	14	0	4.270	39.869	0.762	1.00	21.93
30	ATOM	97	C	ALA	A	14	0	3.571	38.533	1.078	1.00	20.77
	ATOM	98	O	ALA	A	14	0	3.292	38.309	2.259	1.00	20.45
	ATOM	99	CB	ALA	A	14	0	5.676	39.618	0.248	1.00	23.72
	ATOM	100	N	ASN	A	15	0	3.366	37.695	0.072	1.00	18.88
	ATOM	101	CA	ASN	A	15	0	2.748	36.412	0.337	1.00	19.67
35	ATOM	102	C	ASN	A	15	0	3.798	35.457	0.873	1.00	19.19
	ATOM	103	O	ASN	A	15	0	4.891	35.474	0.338	1.00	19.57
	ATOM	104	CB	ASN	A	15	0	2.114	35.721	-0.875	1.00	21.13
	ATOM	105	CG	ASN	A	15	0	0.839	36.457	-1.284	1.00	21.15

	ATOM	106	OD1	ASN	A	15	0	0.343	37.207	-0.472	1.00	20.87
	ATOM	107	ND2	ASN	A	15	0	0.379	36.284	-2.501	1.00	20.00
	ATOM	108	N	VAL	A	16	0	3.358	34.614	1.772	1.00	19.11
	ATOM	109	CA	VAL	A	16	0	4.322	33.628	2.342	1.00	18.90
5	ATOM	110	C	VAL	A	16	0	3.626	32.293	2.345	1.00	19.25
	ATOM	111	O	VAL	A	16	0	2.386	32.281	2.406	1.00	16.71
	ATOM	112	CB	VAL	A	16	0	4.612	34.317	3.691	1.00	19.95
	ATOM	113	CG1	VAL	A	16	0	3.990	33.749	4.937	1.00	18.58
	ATOM	114	CG2	VAL	A	16	0	6.091	34.603	3.814	1.00	21.38
10	ATOM	115	N	SER	A	17	0	4.312	31.157	2.303	1.00	18.57
	ATOM	116	CA	SER	A	17	0	3.678	29.869	2.410	1.00	20.90
	ATOM	117	C	SER	A	17	0	4.608	28.866	3.065	1.00	21.12
	ATOM	118	O	SER	A	17	0	5.106	27.939	2.448	1.00	21.24
	ATOM	119	CB	SER	A	17	0	3.186	29.285	1.080	1.00	23.95
15	ATOM	120	OG	SER	A	17	0	4.204	29.399	0.125	1.00	26.79
	ATOM	121	N	PRO	A	18	0	4.834	29.051	4.358	1.00	20.78
	ATOM	122	CA	PRO	A	18	0	5.703	28.216	5.141	1.00	20.02
	ATOM	123	C	PRO	A	18	0	5.197	26.793	5.376	1.00	19.74
	ATOM	124	O	PRO	A	18	0	5.978	25.920	5.753	1.00	17.97
20	ATOM	125	CB	PRO	A	18	0	5.889	28.954	6.481	1.00	19.27
	ATOM	126	CG	PRO	A	18	0	4.701	29.832	6.536	1.00	21.41
	ATOM	127	CD	PRO	A	18	0	4.249	30.153	5.128	1.00	20.70
	ATOM	128	N	ASP	A	19	0	3.899	26.534	5.241	1.00	18.82
	ATOM	129	CA	ASP	A	19	0	3.323	25.227	5.475	1.00	16.87
25	ATOM	130	C	ASP	A	19	0	2.548	24.823	4.237	1.00	17.28
	ATOM	131	O	ASP	A	19	0	1.713	23.929	4.337	1.00	17.84
	ATOM	132	CB	ASP	A	19	0	2.419	25.207	6.701	1.00	16.54
	ATOM	133	CG	ASP	A	19	0	1.192	26.120	6.596	1.00	16.67
	ATOM	134	OD1	ASP	A	19	0	1.032	26.935	5.654	1.00	14.17
30	ATOM	135	OD2	ASP	A	19	0	0.360	26.045	7.529	1.00	14.56
	ATOM	136	N	GLY	A	20	0	2.782	25.469	3.100	1.00	17.87
	ATOM	137	CA	GLY	A	20	0	2.079	25.091	1.890	1.00	19.40
	ATOM	138	C	GLY	A	20	0	0.732	25.789	1.699	1.00	22.52
	ATOM	139	O	GLY	A	20	0	0.158	25.619	0.628	1.00	22.87
35	ATOM	140	N	PHE	A	21	0	0.240	26.587	2.631	1.00	21.35
	ATOM	141	CA	PHE	A	21	0	-0.913	27.443	2.534	1.00	20.39
	ATOM	142	C	PHE	A	21	0	-0.348	28.855	2.322	1.00	21.23
	ATOM	143	O	PHE	A	21	0	0.475	29.316	3.122	1.00	21.26

	ATOM	144	CB	PHE	A	21	0	-1.742	27.472	3.814	1.00	20.80
	ATOM	145	CG	PHE	A	21	0	-3.059	28.180	3.695	1.00	21.91
	ATOM	146	CD1	PHE	A	21	0	-3.171	29.527	3.963	1.00	22.49
	ATOM	147	CD2	PHE	A	21	0	-4.207	27.470	3.327	1.00	22.51
5	ATOM	148	CE1	PHE	A	21	0	-4.370	30.207	3.845	1.00	22.27
	ATOM	149	CE2	PHE	A	21	0	-5.419	28.128	3.203	1.00	22.79
	ATOM	150	CZ	PHE	A	21	0	-5.498	29.497	3.474	1.00	23.34
	ATOM	151	N	THR	A	22	0	-0.638	29.514	1.225	1.00	20.20
	ATOM	152	CA	THR	A	22	0	-0.143	30.850	0.977	1.00	21.36
10	ATOM	153	C	THR	A	22	0	-1.083	31.939	1.488	1.00	21.79
	ATOM	154	O	THR	A	22	0	-2.271	31.952	1.162	1.00	21.19
	ATOM	155	CB	THR	A	22	0	0.045	31.012	-0.553	1.00	21.46
	ATOM	156	OG1	THR	A	22	0	0.838	29.881	-0.934	1.00	20.09
	ATOM	157	CG2	THR	A	22	0	0.693	32.353	-0.891	1.00	20.94
15	ATOM	158	N	ARG	A	23	0	-0.562	32.871	2.257	1.00	20.80
	ATOM	159	CA	ARG	A	23	0	-1.230	34.008	2.844	1.00	20.78
	ATOM	160	C	ARG	A	23	0	-0.257	35.189	2.960	1.00	21.15
	ATOM	161	O	ARG	A	23	0	0.954	35.018	2.740	1.00	20.42
	ATOM	162	CB	ARG	A	23	0	-1.874	33.685	4.172	1.00	20.47
20	ATOM	163	CG	ARG	A	23	0	-0.964	33.152	5.295	1.00	21.52
	ATOM	164	CD	ARG	A	23	0	-0.552	34.357	6.113	1.00	22.75
	ATOM	165	NE	ARG	A	23	0	-0.905	34.419	7.477	1.00	21.60
	ATOM	166	CZ	ARG	A	23	0	-0.870	35.283	8.464	1.00	19.89
	ATOM	167	NH1	ARG	A	23	0	-0.526	36.565	8.453	1.00	20.19
25	ATOM	168	NH2	ARG	A	23	0	-1.249	34.744	9.610	1.00	18.64
	ATOM	169	N	ALA	A	24	0	-0.784	36.389	3.199	1.00	20.05
	ATOM	170	CA	ALA	A	24	0	0.140	37.541	3.243	1.00	22.03
	ATOM	171	C	ALA	A	24	0	0.786	37.561	4.635	1.00	21.09
	ATOM	172	O	ALA	A	24	0	0.200	37.124	5.637	1.00	21.16
30	ATOM	173	CB	ALA	A	24	0	-0.578	38.836	2.902	1.00	22.98
	ATOM	174	N	GLY	A	25	0	2.042	37.984	4.683	1.00	20.28
	ATOM	175	CA	GLY	A	25	0	2.786	37.993	5.950	1.00	20.29
	ATOM	176	C	GLY	A	25	0	3.649	39.254	5.979	1.00	21.38
	ATOM	177	O	GLY	A	25	0	3.465	40.229	5.238	1.00	21.06
35	ATOM	178	N	ILE	A	26	0	4.604	39.221	6.897	1.00	20.33
	ATOM	179	CA	ILE	A	26	0	5.475	40.365	7.145	1.00	20.64
	ATOM	180	C	ILE	A	26	0	6.903	39.886	6.932	1.00	20.00
	ATOM	181	O	ILE	A	26	0	7.247	38.851	7.485	1.00	21.34

	ATOM	182	CB	ILE	A	26	0	5.278	40.933	8.564	1.00	20.38
	ATOM	183	CG1	ILE	A	26	0	3.883	41.536	8.667	1.00	20.72
	ATOM	184	CG2	ILE	A	26	0	6.333	42.007	8.821	1.00	22.34
	ATOM	185	CD1	ILE	A	26	0	3.310	41.822	10.024	1.00	20.76
5	ATOM	186	N	LEU	A	27	0	7.644	40.551	6.079	1.00	19.10
	ATOM	187	CA	LEU	A	27	0	9.005	40.168	5.739	1.00	19.67
	ATOM	188	C	LEU	A	27	0	9.964	41.226	6.280	1.00	19.85
	ATOM	189	O	LEU	A	27	0	9.591	42.407	6.356	1.00	19.19
	ATOM	190	CB	LEU	A	27	0	9.138	40.172	4.219	1.00	20.26
10	ATOM	191	CG	LEU	A	27	0	9.046	38.883	3.415	1.00	22.65
	ATOM	192	CD1	LEU	A	27	0	8.127	37.835	3.989	1.00	21.10
	ATOM	193	CD2	LEU	A	27	0	8.738	39.198	1.963	1.00	22.01
	ATOM	194	N	VAL	A	28	0	11.162	40.804	6.630	1.00	18.03
	ATOM	195	CA	VAL	A	28	0	12.199	41.723	7.088	1.00	17.24
15	ATOM	196	C	VAL	A	28	0	13.289	41.573	6.040	1.00	18.99
	ATOM	197	O	VAL	A	28	0	13.791	40.453	5.863	1.00	20.36
	ATOM	198	CB	VAL	A	28	0	12.762	41.415	8.491	1.00	16.50
	ATOM	199	CG1	VAL	A	28	0	13.899	42.361	8.845	1.00	15.41
	ATOM	200	CG2	VAL	A	28	0	11.681	41.517	9.558	1.00	15.42
20	ATOM	201	N	ASN	A	29	0	13.575	42.601	5.256	1.00	20.78
	ATOM	202	CA	ASN	A	29	0	14.567	42.579	4.198	1.00	20.46
	ATOM	203	C	ASN	A	29	0	14.316	41.435	3.226	1.00	23.05
	ATOM	204	O	ASN	A	29	0	15.247	40.675	2.880	1.00	23.62
	ATOM	205	CB	ASN	A	29	0	15.982	42.446	4.764	1.00	21.06
25	ATOM	206	CG	ASN	A	29	0	16.475	43.654	5.522	1.00	22.44
	ATOM	207	OD1	ASN	A	29	0	15.870	44.722	5.434	1.00	23.47
	ATOM	208	ND2	ASN	A	29	0	17.560	43.507	6.288	1.00	22.23
	ATOM	209	N	GLY	A	30	0	13.053	41.215	2.878	1.00	23.18
	ATOM	210	CA	GLY	A	30	0	12.662	40.181	1.922	1.00	23.36
30	ATOM	211	C	GLY	A	30	0	12.723	38.757	2.436	1.00	23.85
	ATOM	212	O	GLY	A	30	0	12.707	37.814	1.633	1.00	25.17
	ATOM	213	N	VAL	A	31	0	12.832	38.585	3.755	1.00	21.85
	ATOM	214	CA	VAL	A	31	0	12.999	37.276	4.352	1.00	20.55
	ATOM	215	C	VAL	A	31	0	12.031	37.190	5.548	1.00	19.91
35	ATOM	216	O	VAL	A	31	0	11.796	38.172	6.269	1.00	17.50
	ATOM	217	CB	VAL	A	31	0	14.436	37.020	4.856	1.00	21.36
	ATOM	218	CG1	VAL	A	31	0	14.556	35.709	5.626	1.00	20.79
	ATOM	219	CG2	VAL	A	31	0	15.495	37.005	3.757	1.00	21.84

	ATOM	220	N	HIS A	32	0	11.489	35.984	5.698	1.00	17.05
	ATOM	221	CA	HIS A	32	0	10.592	35.729	6.797	1.00	18.61
	ATOM	222	C	HIS A	32	0	11.417	35.499	8.050	1.00	17.67
	ATOM	223	O	HIS A	32	0	11.873	34.385	8.216	1.00	18.72
5	ATOM	224	CB	HIS A	32	0	9.676	34.543	6.493	1.00	21.00
	ATOM	225	CG	HIS A	32	0	8.639	34.208	7.517	1.00	23.80
	ATOM	226	ND1	HIS A	32	0	7.744	33.174	7.332	1.00	25.14
	ATOM	227	CD2	HIS A	32	0	8.331	34.720	8.735	1.00	25.32
	ATOM	228	CE1	HIS A	32	0	6.942	33.061	8.385	1.00	25.36
10	ATOM	229	NE2	HIS A	32	0	7.271	33.986	9.260	1.00	26.23
	ATOM	230	N	GLY A	33	0	11.522	36.446	8.960	1.00	16.23
	ATOM	231	CA	GLY A	33	0	12.276	36.252	10.198	1.00	16.97
	ATOM	232	C	GLY A	33	0	13.740	35.869	10.083	1.00	15.54
	ATOM	233	O	GLY A	33	0	14.228	34.885	10.609	1.00	15.13
15	ATOM	234	N	PRO A	34	0	14.555	36.734	9.475	1.00	15.75
	ATOM	235	CA	PRO A	34	0	16.012	36.561	9.359	1.00	14.70
	ATOM	236	C	PRO A	34	0	16.734	36.660	10.701	1.00	14.02
	ATOM	237	O	PRO A	34	0	16.241	37.252	11.673	1.00	10.44
	ATOM	238	CB	PRO A	34	0	16.491	37.699	8.435	1.00	14.40
20	ATOM	239	CG	PRO A	34	0	15.441	38.742	8.783	1.00	15.11
	ATOM	240	CD	PRO A	34	0	14.113	38.005	8.905	1.00	13.69
	ATOM	241	N	LEU A	35	0	17.925	36.049	10.767	1.00	13.60
	ATOM	242	CA	LEU A	35	0	18.748	36.022	11.963	1.00	14.35
	ATOM	243	C	LEU A	35	0	19.462	37.359	12.161	1.00	16.25
25	ATOM	244	O	LEU A	35	0	20.015	37.902	11.210	1.00	14.10
	ATOM	245	CB	LEU A	35	0	19.834	34.916	11.862	1.00	15.33
	ATOM	246	CG	LEU A	35	0	20.958	34.943	12.911	1.00	17.74
	ATOM	247	CD1	LEU A	35	0	20.486	34.698	14.348	1.00	16.30
	ATOM	248	CD2	LEU A	35	0	22.052	33.934	12.575	1.00	16.60
30	ATOM	249	N	ILE A	36	0	19.471	37.855	13.384	1.00	16.71
	ATOM	250	CA	ILE A	36	0	20.265	39.027	13.738	1.00	16.66
	ATOM	251	C	ILE A	36	0	21.403	38.487	14.620	1.00	17.92
	ATOM	252	O	ILE A	36	0	21.183	37.732	15.573	1.00	17.20
	ATOM	253	CB	ILE A	36	0	19.560	40.129	14.533	1.00	16.60
35	ATOM	254	CG1	ILE A	36	0	18.389	40.771	13.771	1.00	16.09
	ATOM	255	CG2	ILE A	36	0	20.565	41.226	14.917	1.00	17.67
	ATOM	256	CD1	ILE A	36	0	17.590	41.754	14.629	1.00	15.88
	ATOM	257	N	ARG A	37	0	22.647	38.829	14.288	1.00	18.72

	ATOM	258	CA	ARG	A	37	0	23.754	38.315	15.091	1.00	19.94
	ATOM	259	C	ARG	A	37	0	24.839	39.369	15.280	1.00	20.08
	ATOM	260	O	ARG	A	37	0	24.979	40.249	14.450	1.00	20.52
	ATOM	261	CB	ARG	A	37	0	24.395	37.077	14.465	1.00	21.72
5	ATOM	262	CG	ARG	A	37	0	25.102	37.393	13.171	1.00	24.46
	ATOM	263	CD	ARG	A	37	0	26.113	36.339	12.762	1.00	26.90
	ATOM	264	NE	ARG	A	37	0	26.584	36.571	11.381	1.00	29.30
	ATOM	265	CZ	ARG	A	37	0	26.838	35.571	10.528	1.00	31.29
	ATOM	266	NH1	ARG	A	37	0	26.711	34.283	10.851	1.00	31.37
10	ATOM	267	NH2	ARG	A	37	0	27.252	35.827	9.291	1.00	31.66
	ATOM	268	N	GLY	A	38	0	25.587	39.223	16.361	1.00	20.22
	ATOM	269	CA	GLY	A	38	0	26.716	40.121	16.611	1.00	18.98
	ATOM	270	C	GLY	A	38	0	27.533	39.545	17.765	1.00	18.08
	ATOM	271	O	GLY	A	38	0	27.259	38.421	18.225	1.00	15.92
15	ATOM	272	N	GLY	A	39	0	28.436	40.412	18.238	1.00	17.65
	ATOM	273	CA	GLY	A	39	0	29.322	40.026	19.351	1.00	16.23
	ATOM	274	C	GLY	A	39	0	28.861	40.774	20.592	1.00	17.21
	ATOM	275	O	GLY	A	39	0	28.157	41.784	20.489	1.00	17.27
	ATOM	276	N	LYS	A	40	0	29.276	40.328	21.764	1.00	16.58
20	ATOM	277	CA	LYS	A	40	0	28.839	40.805	23.057	1.00	18.03
	ATOM	278	C	LYS	A	40	0	29.185	42.267	23.348	1.00	20.44
	ATOM	279	O	LYS	A	40	0	28.562	42.878	24.221	1.00	19.42
	ATOM	280	CB	LYS	A	40	0	29.394	39.933	24.185	1.00	16.74
	ATOM	281	CG	LYS	A	40	0	30.892	39.997	24.370	1.00	17.98
25	ATOM	282	CD	LYS	A	40	0	31.333	39.170	25.569	1.00	20.66
	ATOM	283	CE	LYS	A	40	0	32.809	38.768	25.493	1.00	21.70
	ATOM	284	NZ	LYS	A	40	0	33.227	38.111	26.757	1.00	23.11
	ATOM	285	N	ASN	A	41	0	30.181	42.780	22.645	1.00	21.43
	ATOM	286	CA	ASN	A	41	0	30.536	44.171	22.840	1.00	25.14
30	ATOM	287	C	ASN	A	41	0	30.092	44.976	21.644	1.00	24.05
	ATOM	288	O	ASN	A	41	0	30.409	46.161	21.655	1.00	25.66
	ATOM	289	CB	ASN	A	41	0	32.052	44.326	23.111	1.00	27.02
	ATOM	290	CG	ASN	A	41	0	32.434	43.606	24.404	1.00	29.76
	ATOM	291	OD1	ASN	A	41	0	33.398	42.832	24.431	1.00	31.54
35	ATOM	292	ND2	ASN	A	41	0	31.663	43.825	25.473	1.00	30.13
	ATOM	293	N	ASP	A	42	0	29.424	44.447	20.631	1.00	23.80
	ATOM	294	CA	ASP	A	42	0	29.073	45.325	19.506	1.00	24.12
	ATOM	295	C	ASP	A	42	0	28.169	46.484	19.891	1.00	24.24

	ATOM	296	O	ASP A	42	0	27.420	46.428	20.872	1.00	22.42
	ATOM	297	CB	ASP A	42	0	28.388	44.528	18.392	1.00	26.65
	ATOM	298	CG	ASP A	42	0	29.404	43.599	17.773	1.00	28.94
	ATOM	299	OD1	ASP A	42	0	30.603	43.754	18.056	1.00	31.45
5	ATOM	300	OD2	ASP A	42	0	29.026	42.708	17.009	1.00	31.69
	ATOM	301	N	ASN A	43	0	28.258	47.547	19.090	1.00	24.72
	ATOM	302	CA	ASN A	43	0	27.316	48.660	19.255	1.00	26.50
	ATOM	303	C	ASN A	43	0	26.293	48.430	18.128	1.00	26.23
	ATOM	304	O	ASN A	43	0	26.723	48.420	16.979	1.00	25.02
10	ATOM	305	CB	ASN A	43	0	27.934	50.047	19.128	1.00	28.45
	ATOM	306	CG	ASN A	43	0	28.858	50.244	20.323	1.00	31.09
	ATOM	307	OD1	ASN A	43	0	30.041	50.502	20.106	1.00	33.11
	ATOM	308	ND2	ASN A	43	0	28.364	50.055	21.531	1.00	31.18
	ATOM	309	N	PHE A	44	0	25.039	48.155	18.468	1.00	24.63
15	ATOM	310	CA	PHE A	44	0	24.083	47.897	17.393	1.00	23.28
	ATOM	311	C	PHE A	44	0	23.450	49.191	16.916	1.00	22.36
	ATOM	312	O	PHE A	44	0	23.024	50.008	17.735	1.00	21.07
	ATOM	313	CB	PHE A	44	0	22.959	46.965	17.853	1.00	22.04
	ATOM	314	CG	PHE A	44	0	23.376	45.525	17.955	1.00	22.96
20	ATOM	315	CD1	PHE A	44	0	22.779	44.562	17.153	1.00	23.91
	ATOM	316	CD2	PHE A	44	0	24.330	45.120	18.869	1.00	22.03
	ATOM	317	CE1	PHE A	44	0	23.131	43.230	17.253	1.00	24.42
	ATOM	318	CE2	PHE A	44	0	24.689	43.797	18.974	1.00	23.25
	ATOM	319	CZ	PHE A	44	0	24.095	42.837	18.168	1.00	24.02
25	ATOM	320	N	GLU A	45	0	23.350	49.343	15.604	1.00	22.78
	ATOM	321	CA	GLU A	45	0	22.611	50.482	15.054	1.00	24.47
	ATOM	322	C	GLU A	45	0	21.619	49.884	14.055	1.00	23.79
	ATOM	323	O	GLU A	45	0	22.017	49.587	12.924	1.00	24.40
	ATOM	324	CB	GLU A	45	0	23.543	51.473	14.368	1.00	27.07
30	ATOM	325	CG	GLU A	45	0	24.474	52.130	15.374	1.00	31.60
	ATOM	326	CD	GLU A	45	0	25.380	53.179	14.772	1.00	33.90
	ATOM	327	OE1	GLU A	45	0	25.354	53.438	13.559	1.00	35.62
	ATOM	328	OE2	GLU A	45	0	26.155	53.748	15.565	1.00	36.42
	ATOM	329	N	LEU A	46	0	20.369	49.684	14.465	1.00	22.18
35	ATOM	330	CA	LEU A	46	0	19.419	49.044	13.556	1.00	21.22
	ATOM	331	C	LEU A	46	0	18.348	50.001	13.077	1.00	21.27
	ATOM	332	O	LEU A	46	0	17.464	50.429	13.812	1.00	21.60
	ATOM	333	CB	LEU A	46	0	18.837	47.811	14.262	1.00	20.72

	ATOM	334	CG	LEU	A	46	0	19.827	46.658	14.403	1.00	21.28
	ATOM	335	CD1	LEU	A	46	0	19.334	45.621	15.397	1.00	20.83
	ATOM	336	CD2	LEU	A	46	0	20.148	46.034	13.052	1.00	18.33
	ATOM	337	N	ASN	A	47	0	18.438	50.403	11.823	1.00	21.09
5	ATOM	338	CA	ASN	A	47	0	17.498	51.344	11.252	1.00	22.37
	ATOM	339	C	ASN	A	47	0	16.273	50.558	10.803	1.00	22.18
	ATOM	340	O	ASN	A	47	0	16.390	49.810	9.847	1.00	23.41
	ATOM	341	CB	ASN	A	47	0	18.131	52.104	10.066	1.00	24.01
	ATOM	342	CG	ASN	A	47	0	17.226	53.243	9.615	1.00	25.54
10	ATOM	343	OD1	ASN	A	47	0	16.443	53.772	10.413	1.00	26.53
	ATOM	344	ND2	ASN	A	47	0	17.332	53.612	8.346	1.00	26.01
	ATOM	345	N	VAL	A	48	0	15.147	50.692	11.475	1.00	22.04
	ATOM	346	CA	VAL	A	48	0	13.918	49.995	11.140	1.00	21.99
	ATOM	347	C	VAL	A	48	0	13.026	50.879	10.269	1.00	21.82
15	ATOM	348	O	VAL	A	48	0	12.532	51.910	10.699	1.00	20.61
	ATOM	349	CB	VAL	A	48	0	13.176	49.579	12.430	1.00	22.64
	ATOM	350	CG1	VAL	A	48	0	11.819	48.931	12.148	1.00	21.99
	ATOM	351	CG2	VAL	A	48	0	14.098	48.631	13.216	1.00	21.68
	ATOM	352	N	VAL	A	49	0	12.931	50.512	9.009	1.00	21.79
20	ATOM	353	CA	VAL	A	49	0	12.164	51.167	7.966	1.00	21.34
	ATOM	354	C	VAL	A	49	0	10.816	50.460	7.795	1.00	21.12
	ATOM	355	O	VAL	A	49	0	10.703	49.308	7.365	1.00	19.76
	ATOM	356	CB	VAL	A	49	0	12.983	51.189	6.665	1.00	22.02
	ATOM	357	CG1	VAL	A	49	0	12.267	51.913	5.519	1.00	21.70
25	ATOM	358	CG2	VAL	A	49	0	14.312	51.933	6.906	1.00	21.47
	ATOM	359	N	ASN	A	50	0	9.767	51.112	8.257	1.00	20.26
	ATOM	360	CA	ASN	A	50	0	8.424	50.611	8.215	1.00	22.70
	ATOM	361	C	ASN	A	50	0	7.751	50.899	6.869	1.00	25.99
	ATOM	362	O	ASN	A	50	0	7.043	51.925	6.735	1.00	27.06
30	ATOM	363	CB	ASN	A	50	0	7.549	51.230	9.318	1.00	21.92
	ATOM	364	CG	ASN	A	50	0	6.198	50.569	9.471	1.00	22.44
	ATOM	365	OD1	ASN	A	50	0	5.818	49.801	8.572	1.00	24.19
	ATOM	366	ND2	ASN	A	50	0	5.435	50.833	10.526	1.00	20.19
	ATOM	367	N	ASP	A	51	0	7.915	49.959	5.926	1.00	26.42
35	ATOM	368	CA	ASP	A	51	0	7.208	50.071	4.641	1.00	26.35
	ATOM	369	C	ASP	A	51	0	5.951	49.200	4.600	1.00	24.86
	ATOM	370	O	ASP	A	51	0	5.542	48.810	3.511	1.00	25.19
	ATOM	371	CB	ASP	A	51	0	8.126	49.698	3.481	1.00	26.75

	ATOM	372	CG	ASP	A	51	0	9.152	50.761	3.158	1.00	29.77
	ATOM	373	OD1	ASP	A	51	0	8.944	51.904	3.617	1.00	31.03
	ATOM	374	OD2	ASP	A	51	0	10.166	50.509	2.465	1.00	30.42
	ATOM	375	N	LEU	A	52	0	5.332	48.801	5.700	1.00	25.05
5	ATOM	376	CA	LEU	A	52	0	4.172	47.911	5.640	1.00	25.44
	ATOM	377	C	LEU	A	52	0	2.934	48.624	5.094	1.00	26.65
	ATOM	378	O	LEU	A	52	0	2.553	49.696	5.586	1.00	24.56
	ATOM	379	CB	LEU	A	52	0	3.837	47.374	7.029	1.00	24.19
	ATOM	380	CG	LEU	A	52	0	4.896	46.503	7.699	1.00	24.60
10	ATOM	381	CD1	LEU	A	52	0	4.611	46.424	9.196	1.00	24.05
	ATOM	382	CD2	LEU	A	52	0	4.891	45.119	7.061	1.00	23.49
	ATOM	383	N	ASP	A	53	0	2.242	47.980	4.169	1.00	28.79
	ATOM	384	CA	ASP	A	53	0	1.049	48.602	3.581	1.00	29.91
	ATOM	385	C	ASP	A	53	0	-0.135	47.658	3.492	1.00	29.90
15	ATOM	386	O	ASP	A	53	0	-1.152	48.082	2.951	1.00	30.40
	ATOM	387	CB	ASP	A	53	0	1.367	49.190	2.197	1.00	29.26
	ATOM	388	CG	ASP	A	53	0	1.838	48.140	1.218	1.00	31.28
	ATOM	389	OD1	ASP	A	53	0	1.865	46.926	1.540	1.00	31.64
	ATOM	390	OD2	ASP	A	53	0	2.233	48.474	0.074	1.00	32.42
20	ATOM	391	N	ASN	A	54	0	-0.060	46.437	4.014	1.00	29.44
	ATOM	392	CA	ASN	A	54	0	-1.237	45.554	3.983	1.00	26.89
	ATOM	393	C	ASN	A	54	0	-2.089	45.832	5.192	1.00	27.37
	ATOM	394	O	ASN	A	54	0	-1.772	45.528	6.350	1.00	27.99
	ATOM	395	CB	ASN	A	54	0	-0.831	44.095	3.913	1.00	25.11
25	ATOM	396	CG	ASN	A	54	0	-1.978	43.141	3.690	1.00	24.20
	ATOM	397	OD1	ASN	A	54	0	-1.874	42.344	2.746	1.00	25.13
	ATOM	398	ND2	ASN	A	54	0	-3.030	43.182	4.481	1.00	23.26
	ATOM	399	N	PRO	A	55	0	-3.337	46.256	4.961	1.00	28.44
	ATOM	400	CA	PRO	A	55	0	-4.286	46.589	6.014	1.00	26.57
30	ATOM	401	C	PRO	A	55	0	-4.909	45.414	6.723	1.00	27.10
	ATOM	402	O	PRO	A	55	0	-5.671	45.624	7.687	1.00	26.05
	ATOM	403	CB	PRO	A	55	0	-5.368	47.465	5.334	1.00	28.18
	ATOM	404	CG	PRO	A	55	0	-5.249	47.049	3.899	1.00	27.50
	ATOM	405	CD	PRO	A	55	0	-3.844	46.564	3.625	1.00	27.56
35	ATOM	406	N	THR	A	56	0	-4.603	44.160	6.345	1.00	25.55
	ATOM	407	CA	THR	A	56	0	-5.214	43.024	7.065	1.00	25.52
	ATOM	408	C	THR	A	56	0	-4.446	42.647	8.326	1.00	24.87
	ATOM	409	O	THR	A	56	0	-4.766	41.764	9.115	1.00	23.97

ATOM 410 CB THR A 56 O -5.393 41.807 6.154 1.00 25.10
ATOM 411 OG1 THR A 56 O -4.100 41.345 5.763 1.00 24.26
ATOM 412 CG2 THR A 56 O -6.178 42.123 4.861 1.00 25.63
ATOM 413 N MET A 57 O -3.317 43.311 8.558 1.00 26.01
5 ATOM 414 CA MET A 57 O -2.553 43.099 9.801 1.00 26.57
ATOM 415 C MET A 57 O -2.026 44.475 10.201 1.00 25.88
ATOM 416 O MET A 57 O -2.026 45.416 9.397 1.00 25.18
ATOM 417 CB MET A 57 O -1.561 41.939 9.698 1.00 25.42
ATOM 418 CG MET A 57 O -0.639 41.868 8.554 1.00 24.37
10 ATOM 419 SD MET A 57 O -0.034 40.288 7.916 1.00 22.34
ATOM 420 CE MET A 57 O -0.275 40.640 6.167 1.00 19.23
ATOM 421 N LEU A 58 O -1.694 44.601 11.476 1.00 25.98
ATOM 422 CA LEU A 58 O -1.180 45.850 12.036 1.00 25.57
ATOM 423 C LEU A 58 O -0.053 46.425 11.195 1.00 24.52
15 ATOM 424 O LEU A 58 O 0.824 45.739 10.638 1.00 23.63
ATOM 425 CB LEU A 58 O -0.757 45.535 13.463 1.00 26.67
ATOM 426 CG LEU A 58 O -1.628 45.817 14.657 1.00 28.97
ATOM 427 CD1 LEU A 58 O -3.107 45.995 14.312 1.00 30.99
ATOM 428 CD2 LEU A 58 O -1.488 44.756 15.736 1.00 28.36
20 ATOM 429 N ARG A 59 O -0.078 47.741 11.030 1.00 24.96
ATOM 430 CA ARG A 59 O 0.918 48.434 10.231 1.00 26.92
ATOM 431 C ARG A 59 O 1.932 49.229 11.014 1.00 26.31
ATOM 432 O ARG A 59 O 3.120 49.198 10.699 1.00 28.82
ATOM 433 CB ARG A 59 O 0.260 49.277 9.132 1.00 28.35
25 ATOM 434 CG ARG A 59 O -0.252 48.385 7.986 1.00 29.50
ATOM 435 CD ARG A 59 O -0.986 49.274 6.996 1.00 30.33
ATOM 436 NE ARG A 59 O -2.333 49.604 7.459 1.00 32.26
ATOM 437 CZ ARG A 59 O -3.121 50.525 6.883 1.00 33.24
ATOM 438 NH1 ARG A 59 O -2.679 51.233 5.845 1.00 32.27
30 ATOM 439 NH2 ARG A 59 O -4.340 50.712 7.389 1.00 32.65
ATOM 440 N PRO A 60 O 1.542 49.961 12.020 1.00 26.30
ATOM 441 CA PRO A 60 O 2.460 50.669 12.916 1.00 26.19
ATOM 442 C PRO A 60 O 3.312 49.591 13.595 1.00 25.29
ATOM 443 O PRO A 60 O 2.879 48.432 13.668 1.00 24.63
35 ATOM 444 CB PRO A 60 O 1.623 51.464 13.925 1.00 25.93
ATOM 445 CG PRO A 60 O 0.235 51.357 13.325 1.00 26.19
ATOM 446 CD PRO A 60 O 0.165 50.073 12.508 1.00 26.23
ATOM 447 N THR A 61 O 4.544 49.932 13.976 1.00 24.60

ATOM 448 CA THR A 61 O 5.365 48.871 14.587 1.00 23.49
ATOM 449 C THR A 61 O 6.204 49.400 15.743 1.00 22.83
ATOM 450 O THR A 61 O 6.390 50.601 15.921 1.00 20.77
ATOM 451 CB THR A 61 O 6.245 48.170 13.535 1.00 22.69
5 ATOM 452 OG1 THR A 61 O 6.668 46.918 14.096 1.00 23.55
ATOM 453 CG2 THR A 61 O 7.444 48.976 13.119 1.00 20.92
ATOM 454 N SER A 62 O 6.702 48.449 16.507 1.00 22.38
ATOM 455 CA SER A 62 O 7.599 48.672 17.633 1.00 22.47
ATOM 456 C SER A 62 O 8.381 47.380 17.893 1.00 22.12
10 ATOM 457 O SER A 62 O 7.763 46.331 18.124 1.00 20.53
ATOM 458 CB SER A 62 O 6.784 49.033 18.882 1.00 22.02
ATOM 459 OG SER A 62 O 7.666 49.570 19.832 1.00 21.19
ATOM 460 N ILE A 63 O 9.716 47.451 17.806 1.00 21.17
ATOM 461 CA ILE A 63 O 10.513 46.240 17.960 1.00 18.32
15 ATOM 462 C ILE A 63 O 11.095 46.034 19.354 1.00 18.28
ATOM 463 O ILE A 63 O 11.832 46.909 19.826 1.00 19.63
ATOM 464 CB ILE A 63 O 11.642 46.234 16.924 1.00 16.68
ATOM 465 CG1 ILE A 63 O 11.166 46.509 15.508 1.00 18.51
ATOM 466 CG2 ILE A 63 O 12.319 44.848 16.906 1.00 16.78
20 ATOM 467 CD1 ILE A 63 O 10.055 45.625 14.994 1.00 18.25
ATOM 468 N HIS A 64 O 10.880 44.890 19.985 1.00 15.18
ATOM 469 CA HIS A 64 O 11.478 44.539 21.261 1.00 15.51
ATOM 470 C HIS A 64 O 12.648 43.559 21.029 1.00 16.73
ATOM 471 O HIS A 64 O 12.491 42.591 20.279 1.00 16.85
25 ATOM 472 CB HIS A 64 O 10.512 43.912 22.239 1.00 14.37
ATOM 473 CG HIS A 64 O 11.033 43.420 23.546 1.00 14.47
ATOM 474 ND1 HIS A 64 O 11.763 44.191 24.410 1.00 12.89
ATOM 475 CD2 HIS A 64 O 10.883 42.223 24.193 1.00 14.85
ATOM 476 CE1 HIS A 64 O 12.067 43.518 25.498 1.00 11.53
30 ATOM 477 NE2 HIS A 64 O 11.547 42.325 25.423 1.00 13.63
ATOM 478 N TRP A 65 O 13.761 43.781 21.723 1.00 14.37
ATOM 479 CA TRP A 65 O 14.966 42.926 21.577 1.00 13.92
ATOM 480 C TRP A 65 O 14.987 42.084 22.840 1.00 13.50
ATOM 481 O TRP A 65 O 15.482 42.538 23.901 1.00 12.84
35 ATOM 482 CB TRP A 65 O 16.189 43.825 21.371 1.00 13.50
ATOM 483 CG TRP A 65 O 15.890 45.020 20.492 1.00 13.19
ATOM 484 CD1 TRP A 65 O 15.453 46.247 20.913 1.00 12.42
ATOM 485 CD2 TRP A 65 O 15.908 45.087 19.068 1.00 13.61

	ATOM	486	NE1	TRP	A	65	0	15.234	47.067	19.862	1.00	11.49
	ATOM	487	CE2	TRP	A	65	0	15.511	46.390	18.710	1.00	13.77
	ATOM	488	CE3	TRP	A	65	0	16.251	44.174	18.061	1.00	14.35
	ATOM	489	CZ2	TRP	A	65	0	15.439	46.815	17.378	1.00	14.99
5	ATOM	490	CZ3	TRP	A	65	0	16.169	44.572	16.735	1.00	13.99
	ATOM	491	CH2	TRP	A	65	0	15.756	45.869	16.411	1.00	15.82
	ATOM	492	N	HIS	A	66	0	14.295	40.941	22.747	1.00	10.39
	ATOM	493	CA	HIS	A	66	0	13.939	40.200	23.966	1.00	12.00
	ATOM	494	C	HIS	A	66	0	15.158	39.653	24.698	1.00	11.34
10	ATOM	495	O	HIS	A	66	0	15.889	38.859	24.130	1.00	11.51
	ATOM	496	CB	HIS	A	66	0	12.923	39.069	23.629	1.00	10.76
	ATOM	497	CG	HIS	A	66	0	12.418	38.308	24.808	1.00	11.26
	ATOM	498	ND1	HIS	A	66	0	11.106	38.085	25.092	1.00	13.10
	ATOM	499	CD2	HIS	A	66	0	13.050	37.676	25.824	1.00	13.49
15	ATOM	500	CE1	HIS	A	66	0	10.919	37.407	26.191	1.00	12.50
	ATOM	501	NE2	HIS	A	66	0	12.116	37.146	26.683	1.00	13.71
	ATOM	502	N	GLY	A	67	0	15.345	39.971	25.948	1.00	12.84
	ATOM	503	CA	GLY	A	67	0	16.492	39.469	26.719	1.00	13.36
	ATOM	504	C	GLY	A	67	0	17.596	40.500	26.914	1.00	13.11
20	ATOM	505	O	GLY	A	67	0	18.435	40.289	27.788	1.00	13.36
	ATOM	506	N	LEU	A	68	0	17.641	41.558	26.131	1.00	12.89
	ATOM	507	CA	LEU	A	68	0	18.659	42.598	26.300	1.00	15.22
	ATOM	508	C	LEU	A	68	0	18.235	43.501	27.448	1.00	16.14
	ATOM	509	O	LEU	A	68	0	17.029	43.842	27.505	1.00	16.50
25	ATOM	510	CB	LEU	A	68	0	18.929	43.320	24.988	1.00	15.98
	ATOM	511	CG	LEU	A	68	0	20.002	42.638	24.114	1.00	19.57
	ATOM	512	CD1	LEU	A	68	0	19.719	41.185	23.809	1.00	20.39
	ATOM	513	CD2	LEU	A	68	0	20.188	43.316	22.758	1.00	19.59
	ATOM	514	N	PHE	A	69	0	19.125	43.848	28.386	1.00	13.24
30	ATOM	515	CA	PHE	A	69	0	18.700	44.657	29.526	1.00	13.85
	ATOM	516	C	PHE	A	69	0	18.499	46.128	29.205	1.00	14.34
	ATOM	517	O	PHE	A	69	0	17.806	46.879	29.895	1.00	15.02
	ATOM	518	CB	PHE	A	69	0	19.770	44.579	30.637	1.00	16.02
	ATOM	519	CG	PHE	A	69	0	20.112	43.187	31.072	1.00	16.45
35	ATOM	520	CD1	PHE	A	69	0	19.172	42.162	31.026	1.00	16.68
	ATOM	521	CD2	PHE	A	69	0	21.381	42.927	31.578	1.00	16.78
	ATOM	522	CE1	PHE	A	69	0	19.504	40.883	31.448	1.00	18.86
	ATOM	523	CE2	PHE	A	69	0	21.717	41.652	32.001	1.00	17.34

ATOM 524 CZ PHE A 69 0 20.782 40.628 31.932 1.00 18.09
ATOM 525 N GLN A 70 0 19.081 46.611 28.130 1.00 12.22
ATOM 526 CA GLN A 70 0 18.919 47.990 27.708 1.00 15.20
ATOM 527 C GLN A 70 0 19.242 49.004 28.799 1.00 16.76
5 ATOM 528 O GLN A 70 0 18.555 50.016 28.919 1.00 16.08
ATOM 529 CB GLN A 70 0 17.488 48.115 27.232 1.00 15.52
ATOM 530 CG GLN A 70 0 17.168 47.303 26.003 1.00 17.37
ATOM 531 CD GLN A 70 0 17.781 47.744 24.709 1.00 17.70
ATOM 532 OE1 GLN A 70 0 17.557 47.090 23.676 1.00 21.63
10 ATOM 533 NE2 GLN A 70 0 18.549 48.805 24.620 1.00 16.79
ATOM 534 N ARG A 71 0 20.338 48.804 29.518 1.00 16.49
ATOM 535 CA ARG A 71 0 20.765 49.712 30.588 1.00 18.41
ATOM 536 C ARG A 71 0 21.239 51.011 29.970 1.00 16.23
ATOM 537 O ARG A 71 0 22.059 50.998 29.027 1.00 14.48
15 ATOM 538 CB ARG A 71 0 21.827 48.942 31.382 1.00 22.65
ATOM 539 CG ARG A 71 0 22.273 49.589 32.671 1.00 29.50
ATOM 540 CD ARG A 71 0 23.286 48.756 33.457 1.00 32.92
ATOM 541 NE ARG A 71 0 22.712 47.550 34.035 1.00 38.11
ATOM 542 CZ ARG A 71 0 22.551 46.358 33.452 1.00 40.14
20 ATOM 543 NH1 ARG A 71 0 22.939 46.138 32.190 1.00 41.23
ATOM 544 NH2 ARG A 71 0 22.022 45.333 34.130 1.00 40.89
ATOM 545 N GLY A 72 0 20.613 52.145 30.311 1.00 14.82
ATOM 546 CA GLY A 72 0 20.981 53.414 29.676 1.00 14.51
ATOM 547 C GLY A 72 0 20.268 53.606 28.338 1.00 15.55
25 ATOM 548 O GLY A 72 0 20.401 54.706 27.777 1.00 16.32
ATOM 549 N THR A 73 0 19.503 52.651 27.804 1.00 12.12
ATOM 550 CA THR A 73 0 18.857 52.781 26.516 1.00 12.50
ATOM 551 C THR A 73 0 17.418 52.252 26.621 1.00 13.98
ATOM 552 O THR A 73 0 16.890 51.534 25.776 1.00 13.81
30 ATOM 553 CB THR A 73 0 19.577 52.086 25.346 1.00 12.21
ATOM 554 OG1 THR A 73 0 19.854 50.711 25.666 1.00 12.83
ATOM 555 CG2 THR A 73 0 20.944 52.711 25.000 1.00 9.81
ATOM 556 N ASN A 74 0 16.744 52.617 27.708 1.00 12.97
ATOM 557 CA ASN A 74 0 15.354 52.273 27.951 1.00 14.93
35 ATOM 558 C ASN A 74 0 14.469 52.718 26.784 1.00 15.92
ATOM 559 O ASN A 74 0 13.501 52.030 26.455 1.00 16.56
ATOM 560 CB ASN A 74 0 14.851 52.821 29.271 1.00 13.06
ATOM 561 CG ASN A 74 0 13.385 52.519 29.556 1.00 15.47

	ATOM	562	OD1	ASN	A	74	0	12.557	53.250	29.021	1.00	13.99
	ATOM	563	ND2	ASN	A	74	0	13.063	51.500	30.367	1.00	13.91
	ATOM	564	N	TRP	A	75	0	14.806	53.765	26.041	1.00	16.16
	ATOM	565	CA	TRP	A	75	0	14.036	54.262	24.917	1.00	16.49
5	ATOM	566	C	TRP	A	75	0	14.050	53.345	23.701	1.00	17.29
	ATOM	567	O	TRP	A	75	0	13.235	53.529	22.776	1.00	16.34
	ATOM	568	CB	TRP	A	75	0	14.516	55.657	24.509	1.00	15.90
	ATOM	569	CG	TRP	A	75	0	15.990	55.705	24.207	1.00	16.04
	ATOM	570	CD1	TRP	A	75	0	17.011	55.972	25.072	1.00	14.90
10	ATOM	571	CD2	TRP	A	75	0	16.584	55.475	22.916	1.00	15.94
	ATOM	572	NE1	TRP	A	75	0	18.210	55.917	24.384	1.00	15.89
	ATOM	573	CE2	TRP	A	75	0	17.977	55.624	23.076	1.00	15.80
	ATOM	574	CE3	TRP	A	75	0	16.060	55.171	21.656	1.00	14.88
	ATOM	575	CZ2	TRP	A	75	0	18.867	55.459	22.016	1.00	17.60
15	ATOM	576	CZ3	TRP	A	75	0	16.928	55.025	20.603	1.00	16.64
	ATOM	577	CH2	TRP	A	75	0	18.321	55.153	20.785	1.00	18.16
	ATOM	578	N	ALA	A	76	0	14.962	52.372	23.675	1.00	15.12
	ATOM	579	CA	ALA	A	76	0	15.075	51.430	22.578	1.00	14.61
	ATOM	580	C	ALA	A	76	0	14.569	50.047	22.971	1.00	13.98
20	ATOM	581	O	ALA	A	76	0	14.617	49.132	22.159	1.00	14.20
	ATOM	582	CB	ALA	A	76	0	16.554	51.354	22.157	1.00	13.68
	ATOM	583	N	ASP	A	77	0	13.941	49.885	24.121	1.00	14.47
	ATOM	584	CA	ASP	A	77	0	13.409	48.605	24.586	1.00	14.23
	ATOM	585	C	ASP	A	77	0	12.198	48.167	23.762	1.00	15.04
25	ATOM	586	O	ASP	A	77	0	11.982	46.946	23.638	1.00	13.78
	ATOM	587	CB	ASP	A	77	0	13.112	48.567	26.072	1.00	13.41
	ATOM	588	CG	ASP	A	77	0	12.945	47.155	26.612	1.00	14.93
	ATOM	589	OD1	ASP	A	77	0	11.943	46.986	27.345	1.00	15.07
	ATOM	590	OD2	ASP	A	77	0	13.744	46.217	26.334	1.00	13.73
30	ATOM	591	N	GLY	A	78	0	11.458	49.095	23.160	1.00	13.63
	ATOM	592	CA	GLY	A	78	0	10.442	48.686	22.210	1.00	14.96
	ATOM	593	C	GLY	A	78	0	9.040	48.309	22.631	1.00	16.75
	ATOM	594	O	GLY	A	78	0	8.276	47.865	21.755	1.00	16.49
	ATOM	595	N	ALA	A	79	0	8.631	48.436	23.886	1.00	15.34
35	ATOM	596	CA	ALA	A	79	0	7.252	48.176	24.270	1.00	14.70
	ATOM	597	C	ALA	A	79	0	6.490	49.495	24.084	1.00	17.51
	ATOM	598	O	ALA	A	79	0	6.690	50.486	24.807	1.00	17.05
	ATOM	599	CB	ALA	A	79	0	7.145	47.701	25.708	1.00	14.78

	ATOM	600	N	ASP	A	80	0	5.641	49.536	23.053	1.00	18.56
	ATOM	601	CA	ASP	A	80	0	4.859	50.741	22.798	1.00	19.52
	ATOM	602	C	ASP	A	80	0	3.959	50.963	24.010	1.00	17.61
	ATOM	603	O	ASP	A	80	0	3.530	49.999	24.664	1.00	16.72
5	ATOM	604	CB	ASP	A	80	0	4.044	50.714	21.510	1.00	24.02
	ATOM	605	CG	ASP	A	80	0	3.003	49.607	21.549	1.00	28.13
	ATOM	606	OD1	ASP	A	80	0	3.410	48.417	21.541	1.00	30.66
	ATOM	607	OD2	ASP	A	80	0	1.803	49.959	21.603	1.00	30.61
	ATOM	608	N	GLY	A	81	0	3.776	52.242	24.337	1.00	15.85
10	ATOM	609	CA	GLY	A	81	0	2.991	52.566	25.532	1.00	16.27
	ATOM	610	C	GLY	A	81	0	3.846	52.615	26.784	1.00	18.72
	ATOM	611	O	GLY	A	81	0	3.405	52.983	27.890	1.00	20.61
	ATOM	612	N	VAL	A	82	0	5.108	52.173	26.725	1.00	19.11
	ATOM	613	CA	VAL	A	82	0	5.978	52.119	27.890	1.00	19.14
15	ATOM	614	C	VAL	A	82	0	7.288	52.851	27.590	1.00	18.41
	ATOM	615	O	VAL	A	82	0	7.594	53.839	28.242	1.00	16.79
	ATOM	616	CB	VAL	A	82	0	6.266	50.697	28.390	1.00	19.82
	ATOM	617	CG1	VAL	A	82	0	7.059	50.741	29.710	1.00	21.37
	ATOM	618	CG2	VAL	A	82	0	4.995	49.894	28.640	1.00	19.27
20	ATOM	619	N	ASN	A	83	0	7.982	52.408	26.551	1.00	17.90
	ATOM	620	CA	ASN	A	83	0	9.271	52.926	26.147	1.00	16.94
	ATOM	621	C	ASN	A	83	0	9.226	53.778	24.886	1.00	18.32
	ATOM	622	O	ASN	A	83	0	10.175	54.551	24.634	1.00	20.58
	ATOM	623	CB	ASN	A	83	0	10.249	51.747	25.937	1.00	15.23
25	ATOM	624	CG	ASN	A	83	0	10.112	50.745	27.063	1.00	16.00
	ATOM	625	OD1	ASN	A	83	0	9.493	49.676	26.879	1.00	14.98
	ATOM	626	ND2	ASN	A	83	0	10.583	51.131	28.249	1.00	13.17
	ATOM	627	N	GLN	A	84	0	8.183	53.668	24.066	1.00	16.40
	ATOM	628	CA	GLN	A	84	0	8.080	54.464	22.867	1.00	16.34
30	ATOM	629	C	GLN	A	84	0	6.658	54.465	22.309	1.00	17.95
	ATOM	630	O	GLN	A	84	0	5.816	53.679	22.728	1.00	17.69
	ATOM	631	CB	GLN	A	84	0	8.995	53.953	21.754	1.00	17.98
	ATOM	632	CG	GLN	A	84	0	8.456	52.654	21.127	1.00	16.63
	ATOM	633	CD	GLN	A	84	0	9.272	52.225	19.938	1.00	18.17
35	ATOM	634	OE1	GLN	A	84	0	8.994	52.601	18.792	1.00	20.91
	ATOM	635	NE2	GLN	A	84	0	10.279	51.385	20.096	1.00	18.70
	ATOM	636	N	CYS	A	85	0	6.419	55.350	21.365	1.00	18.60
	ATOM	637	CA	CYS	A	85	0	5.140	55.344	20.622	1.00	20.25

	ATOM	638	C	CYS A	85	0	5.512	54.555	19.375	1.00	19.55
	ATOM	639	O	CYS A	85	0	6.690	54.546	18.995	1.00	18.92
	ATOM	640	CB	CYS A	85	0	4.772	56.786	20.228	1.00	22.20
	ATOM	641	SG	CYS A	85	0	3.899	57.783	21.481	1.00	24.65
5	ATOM	642	N	PRO A	86	0	4.589	53.951	18.674	1.00	21.19
	ATOM	643	CA	PRO A	86	0	4.869	53.152	17.498	1.00	20.78
	ATOM	644	C	PRO A	86	0	5.560	53.930	16.394	1.00	21.46
	ATOM	645	O	PRO A	86	0	5.453	55.137	16.298	1.00	23.08
	ATOM	646	CB	PRO A	86	0	3.530	52.555	17.028	1.00	19.94
10	ATOM	647	CG	PRO A	86	0	2.667	52.720	18.252	1.00	19.59
	ATOM	648	CD	PRO A	86	0	3.174	53.872	19.062	1.00	20.46
	ATOM	649	N	ILE A	87	0	6.318	53.259	15.550	1.00	20.95
	ATOM	650	CA	ILE A	87	0	6.907	53.773	14.337	1.00	22.43
	ATOM	651	C	ILE A	87	0	5.768	53.641	13.292	1.00	22.80
15	ATOM	652	O	ILE A	87	0	5.148	52.562	13.228	1.00	21.61
	ATOM	653	CB	ILE A	87	0	8.105	52.954	13.844	1.00	21.99
	ATOM	654	CG1	ILE A	87	0	9.130	52.696	14.944	1.00	24.18
	ATOM	655	CG2	ILE A	87	0	8.773	53.656	12.674	1.00	22.91
	ATOM	656	CD1	ILE A	87	0	10.256	51.776	14.514	1.00	23.87
20	ATOM	657	N	SER A	88	0	5.464	54.702	12.570	1.00	22.64
	ATOM	658	CA	SER A	88	0	4.338	54.709	11.647	1.00	22.85
	ATOM	659	C	SER A	88	0	4.751	54.268	10.249	1.00	23.35
	ATOM	660	O	SER A	88	0	5.870	54.489	9.764	1.00	23.30
	ATOM	661	CB	SER A	88	0	3.767	56.137	11.518	1.00	24.00
25	ATOM	662	OG	SER A	88	0	3.379	56.770	12.720	1.00	23.93
	ATOM	663	N	PRO A	89	0	3.778	53.752	9.514	1.00	23.60
	ATOM	664	CA	PRO A	89	0	3.955	53.382	8.116	1.00	25.19
	ATOM	665	C	PRO A	89	0	4.579	54.556	7.361	1.00	26.58
	ATOM	666	O	PRO A	89	0	4.177	55.699	7.585	1.00	26.66
30	ATOM	667	CB	PRO A	89	0	2.566	53.065	7.555	1.00	23.59
	ATOM	668	CG	PRO A	89	0	1.740	52.856	8.798	1.00	22.37
	ATOM	669	CD	PRO A	89	0	2.415	53.513	9.970	1.00	23.25
	ATOM	670	N	GLY A	90	0	5.588	54.311	6.550	1.00	27.73
	ATOM	671	CA	GLY A	90	0	6.223	55.338	5.748	1.00	30.55
35	ATOM	672	C	GLY A	90	0	7.384	56.032	6.438	1.00	32.38
	ATOM	673	O	GLY A	90	0	8.050	56.894	5.879	1.00	32.53
	ATOM	674	N	HIS A	91	0	7.639	55.693	7.702	1.00	32.77
	ATOM	675	CA	HIS A	91	0	8.691	56.283	8.494	1.00	32.55

	ATOM	676	C	HIS A	91	0	9.649	55.179	8.982	1.00	32.36
	ATOM	677	O	HIS A	91	0	9.381	53.972	8.961	1.00	31.30
	ATOM	678	CB	HIS A	91	0	8.118	57.016	9.722	1.00	33.75
	ATOM	679	CG	HIS A	91	0	7.147	58.073	9.295	1.00	34.64
5	ATOM	680	ND1	HIS A	91	0	7.519	59.381	9.072	1.00	34.41
	ATOM	681	CD2	HIS A	91	0	5.822	57.977	9.002	1.00	34.89
	ATOM	682	CE1	HIS A	91	0	6.450	60.050	8.679	1.00	34.87
	ATOM	683	NE2	HIS A	91	0	5.410	59.233	8.628	1.00	35.14
	ATOM	684	N	ALA A	92	0	10.786	55.668	9.437	1.00	29.57
10	ATOM	685	CA	ALA A	92	0	11.895	54.898	9.937	1.00	27.71
	ATOM	686	C	ALA A	92	0	12.316	55.347	11.337	1.00	27.41
	ATOM	687	O	ALA A	92	0	12.076	56.484	11.741	1.00	26.12
	ATOM	688	CB	ALA A	92	0	13.051	55.057	8.967	1.00	25.23
	ATOM	689	N	PHE A	93	0	12.931	54.418	12.081	1.00	26.87
15	ATOM	690	CA	PHE A	93	0	13.441	54.760	13.405	1.00	25.87
	ATOM	691	C	PHE A	93	0	14.746	54.008	13.632	1.00	25.21
	ATOM	692	O	PHE A	93	0	14.797	52.810	13.347	1.00	25.80
	ATOM	693	CB	PHE A	93	0	12.457	54.456	14.526	1.00	25.30
	ATOM	694	CG	PHE A	93	0	12.964	54.955	15.847	1.00	25.41
20	ATOM	695	CD1	PHE A	93	0	13.154	56.309	16.061	1.00	25.36
	ATOM	696	CD2	PHE A	93	0	13.276	54.057	16.853	1.00	25.31
	ATOM	697	CE1	PHE A	93	0	13.637	56.753	17.285	1.00	26.54
	ATOM	698	CE2	PHE A	93	0	13.754	54.503	18.078	1.00	25.39
	ATOM	699	CZ	PHE A	93	0	13.935	55.857	18.302	1.00	25.01
25	ATOM	700	N	LEU A	94	0	15.756	54.699	14.136	1.00	23.39
	ATOM	701	CA	LEU A	94	0	17.046	54.058	14.361	1.00	23.35
	ATOM	702	C	LEU A	94	0	17.191	53.611	15.804	1.00	23.22
	ATOM	703	O	LEU A	94	0	17.261	54.431	16.714	1.00	23.47
	ATOM	704	CB	LEU A	94	0	18.186	54.994	13.943	1.00	24.96
30	ATOM	705	CG	LEU A	94	0	19.630	54.555	14.170	1.00	26.28
	ATOM	706	CD1	LEU A	94	0	19.979	53.313	13.352	1.00	25.99
	ATOM	707	CD2	LEU A	94	0	20.627	55.678	13.887	1.00	26.06
	ATOM	708	N	TYR A	95	0	17.261	52.293	16.023	1.00	21.81
	ATOM	709	CA	TYR A	95	0	17.481	51.780	17.379	1.00	19.72
35	ATOM	710	C	TYR A	95	0	18.991	51.663	17.585	1.00	20.90
	ATOM	711	O	TYR A	95	0	19.690	51.248	16.656	1.00	20.74
	ATOM	712	CB	TYR A	95	0	16.831	50.448	17.609	1.00	17.86
	ATOM	713	CG	TYR A	95	0	15.329	50.411	17.691	1.00	16.35

	ATOM	714	CD1	TYR	A	95	0	14.541	50.288	16.535	1.00	16.89
	ATOM	715	CD2	TYR	A	95	0	14.701	50.442	18.911	1.00	15.71
	ATOM	716	CE1	TYR	A	95	0	13.157	50.205	16.621	1.00	17.21
	ATOM	717	CE2	TYR	A	95	0	13.325	50.362	19.033	1.00	16.25
5	ATOM	718	CZ	TYR	A	95	0	12.568	50.266	17.874	1.00	17.97
	ATOM	719	OH	TYR	A	95	0	11.205	50.189	18.001	1.00	18.61
	ATOM	720	N	LYS	A	96	0	19.475	52.105	18.752	1.00	20.56
	ATOM	721	CA	LYS	A	96	0	20.917	52.058	18.975	1.00	21.77
	ATOM	722	C	LYS	A	96	0	21.139	51.519	20.386	1.00	20.91
10	ATOM	723	O	LYS	A	96	0	20.558	52.122	21.286	1.00	21.98
	ATOM	724	CB	LYS	A	96	0	21.565	53.427	18.960	1.00	22.89
	ATOM	725	CG	LYS	A	96	0	21.857	54.046	17.609	1.00	26.39
	ATOM	726	CD	LYS	A	96	0	22.749	55.251	17.923	1.00	30.80
	ATOM	727	CE	LYS	A	96	0	22.732	56.348	16.884	1.00	32.90
15	ATOM	728	NZ	LYS	A	96	0	23.767	57.378	17.277	1.00	36.06
	ATOM	729	N	PHE	A	97	0	21.871	50.437	20.520	1.00	18.14
	ATOM	730	CA	PHE	A	97	0	22.062	49.863	21.854	1.00	18.19
	ATOM	731	C	PHE	A	97	0	23.276	48.928	21.805	1.00	16.76
	ATOM	732	O	PHE	A	97	0	23.870	48.700	20.747	1.00	14.19
20	ATOM	733	CB	PHE	A	97	0	20.816	49.067	22.307	1.00	17.34
	ATOM	734	CG	PHE	A	97	0	20.379	48.026	21.304	1.00	17.56
	ATOM	735	CD1	PHE	A	97	0	20.873	46.732	21.348	1.00	16.27
	ATOM	736	CD2	PHE	A	97	0	19.451	48.343	20.326	1.00	18.65
	ATOM	737	CE1	PHE	A	97	0	20.476	45.801	20.398	1.00	17.76
25	ATOM	738	CE2	PHE	A	97	0	19.026	47.408	19.386	1.00	18.64
	ATOM	739	CZ	PHE	A	97	0	19.546	46.120	19.416	1.00	17.55
	ATOM	740	N	THR	A	98	0	23.552	48.348	22.971	1.00	17.45
	ATOM	741	CA	THR	A	98	0	24.644	47.359	22.992	1.00	17.00
	ATOM	742	C	THR	A	98	0	24.304	46.333	24.042	1.00	16.63
30	ATOM	743	O	THR	A	98	0	23.725	46.631	25.090	1.00	15.86
	ATOM	744	CB	THR	A	98	0	26.028	47.990	23.256	1.00	17.53
	ATOM	745	OG1	THR	A	98	0	27.017	46.924	23.372	1.00	19.01
	ATOM	746	CG2	THR	A	98	0	26.088	48.807	24.525	1.00	14.85
	ATOM	747	N	PRO	A	99	0	24.740	45.097	23.831	1.00	15.98
35	ATOM	748	CA	PRO	A	99	0	24.601	44.019	24.787	1.00	15.11
	ATOM	749	C	PRO	A	99	0	25.445	44.270	26.020	1.00	15.99
	ATOM	750	O	PRO	A	99	0	25.260	43.633	27.064	1.00	15.94
	ATOM	751	CB	PRO	A	99	0	25.025	42.717	24.098	1.00	15.83

	ATOM	752	CG	PRO	A	99	0	25.042	43.140	22.644	1.00	17.12
	ATOM	753	CD	PRO	A	99	0	25.362	44.627	22.601	1.00	15.68
	ATOM	754	N	ALA	A	100	0	26.452	45.149	25.932	1.00	17.29
	ATOM	755	CA	ALA	A	100	0	27.316	45.501	27.050	1.00	16.88
5	ATOM	756	C	ALA	A	100	0	27.919	44.293	27.754	1.00	16.16
	ATOM	757	O	ALA	A	100	0	27.779	44.187	28.977	1.00	18.13
	ATOM	758	CB	ALA	A	100	0	26.498	46.292	28.084	1.00	14.96
	ATOM	759	N	GLY	A	101	0	28.474	43.360	27.033	1.00	16.41
	ATOM	760	CA	GLY	A	101	0	29.063	42.172	27.599	1.00	17.49
10	ATOM	761	C	GLY	A	101	0	28.130	40.994	27.769	1.00	16.15
	ATOM	762	O	GLY	A	101	0	28.593	39.930	28.137	1.00	16.57
	ATOM	763	N	HIS	A	102	0	26.838	41.120	27.521	1.00	17.58
	ATOM	764	CA	HIS	A	102	0	25.858	40.058	27.804	1.00	15.77
	ATOM	765	C	HIS	A	102	0	25.707	39.165	26.600	1.00	15.28
15	ATOM	766	O	HIS	A	102	0	25.087	39.641	25.662	1.00	17.64
	ATOM	767	CB	HIS	A	102	0	24.498	40.666	28.186	1.00	17.95
	ATOM	768	CG	HIS	A	102	0	23.432	39.661	28.493	1.00	20.00
	ATOM	769	ND1	HIS	A	102	0	22.099	40.005	28.547	1.00	20.59
	ATOM	770	CD2	HIS	A	102	0	23.475	38.323	28.772	1.00	20.09
20	ATOM	771	CE1	HIS	A	102	0	21.398	38.937	28.866	1.00	20.77
	ATOM	772	NE2	HIS	A	102	0	22.201	37.896	29.016	1.00	20.56
	ATOM	773	N	ALA	A	103	0	26.277	37.958	26.584	1.00	13.32
	ATOM	774	CA	ALA	A	103	0	26.141	37.127	25.415	1.00	13.99
	ATOM	775	C	ALA	A	103	0	24.974	36.156	25.649	1.00	13.43
25	ATOM	776	O	ALA	A	103	0	24.571	35.905	26.784	1.00	11.81
	ATOM	777	CB	ALA	A	103	0	27.418	36.329	25.151	1.00	16.36
	ATOM	778	N	GLY	A	104	0	24.459	35.610	24.554	1.00	12.38
	ATOM	779	CA	GLY	A	104	0	23.381	34.632	24.778	1.00	12.85
	ATOM	780	C	GLY	A	104	0	22.480	34.451	23.581	1.00	11.06
30	ATOM	781	O	GLY	A	104	0	22.674	35.057	22.515	1.00	10.91
	ATOM	782	N	THR	A	105	0	21.442	33.650	23.794	1.00	10.14
	ATOM	783	CA	THR	A	105	0	20.490	33.394	22.704	1.00	10.04
	ATOM	784	C	THR	A	105	0	19.238	34.236	22.989	1.00	9.52
	ATOM	785	O	THR	A	105	0	18.738	34.194	24.125	1.00	7.52
35	ATOM	786	CB	THR	A	105	0	20.114	31.913	22.665	1.00	12.67
	ATOM	787	OG1	THR	A	105	0	21.273	31.075	22.593	1.00	13.47
	ATOM	788	CG2	THR	A	105	0	19.187	31.684	21.468	1.00	12.75
	ATOM	789	N	PHE	A	106	0	18.842	35.065	22.044	1.00	7.76

	ATOM	790	CA	PHE	A 106	0	17.731	35.992	22.243	1.00	10.15
	ATOM	791	C	PHE	A 106	0	16.756	35.910	21.068	1.00	8.42
	ATOM	792	O	PHE	A 106	0	16.941	35.083	20.166	1.00	8.33
	ATOM	793	CB	PHE	A 106	0	18.283	37.460	22.369	1.00	10.19
5	ATOM	794	CG	PHE	A 106	0	19.291	37.577	23.506	1.00	12.95
	ATOM	795	CD1	PHE	A 106	0	18.905	37.443	24.815	1.00	11.44
	ATOM	796	CD2	PHE	A 106	0	20.654	37.775	23.230	1.00	12.37
	ATOM	797	CE1	PHE	A 106	0	19.855	37.531	25.822	1.00	14.20
	ATOM	798	CE2	PHE	A 106	0	21.574	37.857	24.273	1.00	11.56
10	ATOM	799	CZ	PHE	A 106	0	21.202	37.733	25.599	1.00	9.45
	ATOM	800	N	TRP	A 107	0	15.869	36.887	20.917	1.00	6.61
	ATOM	801	CA	TRP	A 107	0	15.062	36.977	19.713	1.00	10.20
	ATOM	802	C	TRP	A 107	0	14.511	38.398	19.625	1.00	10.63
	ATOM	803	O	TRP	A 107	0	14.463	39.036	20.657	1.00	13.71
15	ATOM	804	CB	TRP	A 107	0	13.928	35.966	19.636	1.00	7.49
	ATOM	805	CG	TRP	A 107	0	12.945	35.916	20.755	1.00	9.41
	ATOM	806	CD1	TRP	A 107	0	13.136	35.804	22.106	1.00	10.53
	ATOM	807	CD2	TRP	A 107	0	11.509	36.004	20.581	1.00	9.17
	ATOM	808	NE1	TRP	A 107	0	11.929	35.784	22.768	1.00	10.63
20	ATOM	809	CE2	TRP	A 107	0	10.924	35.926	21.842	1.00	9.90
	ATOM	810	CE3	TRP	A 107	0	10.698	36.144	19.444	1.00	8.77
	ATOM	811	CZ2	TRP	A 107	0	9.538	35.947	22.025	1.00	10.01
	ATOM	812	CZ3	TRP	A 107	0	9.336	36.167	19.613	1.00	8.60
	ATOM	813	CH2	TRP	A 107	0	8.774	36.061	20.890	1.00	10.09
25	ATOM	814	N	TYR	A 108	0	14.117	38.847	18.464	1.00	10.72
	ATOM	815	CA	TYR	A 108	0	13.498	40.148	18.302	1.00	12.19
	ATOM	816	C	TYR	A 108	0	12.030	39.869	17.875	1.00	13.62
	ATOM	817	O	TYR	A 108	0	11.752	38.837	17.245	1.00	13.85
	ATOM	818	CB	TYR	A 108	0	14.182	40.994	17.259	1.00	11.05
30	ATOM	819	CG	TYR	A 108	0	14.176	40.413	15.857	1.00	13.89
	ATOM	820	CD1	TYR	A 108	0	15.087	39.464	15.423	1.00	12.99
	ATOM	821	CD2	TYR	A 108	0	13.257	40.897	14.920	1.00	14.94
	ATOM	822	CE1	TYR	A 108	0	15.064	38.979	14.130	1.00	13.64
	ATOM	823	CE2	TYR	A 108	0	13.216	40.409	13.624	1.00	15.34
35	ATOM	824	CZ	TYR	A 108	0	14.123	39.443	13.236	1.00	14.99
	ATOM	825	OH	TYR	A 108	0	14.063	38.960	11.946	1.00	16.68
	ATOM	826	N	HIS	A 109	0	11.123	40.752	18.254	1.00	12.81
	ATOM	827	CA	HIS	A 109	0	9.735	40.630	17.826	1.00	14.92

	ATOM	828	C	HIS A 109	0	9.057	41.988	17.991	1.00	15.96
	ATOM	829	O	HIS A 109	0	9.392	42.800	18.875	1.00	15.67
	ATOM	830	CB	HIS A 109	0	8.903	39.566	18.550	1.00	12.30
	ATOM	831	CG	HIS A 109	0	8.804	39.727	20.036	1.00	12.30
5	ATOM	832	ND1	HIS A 109	0	7.788	40.429	20.666	1.00	9.89
	ATOM	833	CD2	HIS A 109	0	9.614	39.264	21.034	1.00	10.76
	ATOM	834	CE1	HIS A 109	0	7.982	40.379	21.971	1.00	8.49
	ATOM	835	NE2	HIS A 109	0	9.086	39.679	22.224	1.00	7.92
	ATOM	836	N	SER A 110	0	8.070	42.203	17.122	1.00	16.26
10	ATOM	837	CA	SER A 110	0	7.244	43.404	17.300	1.00	14.55
	ATOM	838	C	SER A 110	0	6.548	43.283	18.646	1.00	13.56
	ATOM	839	O	SER A 110	0	6.219	42.191	19.140	1.00	13.54
	ATOM	840	CB	SER A 110	0	6.219	43.543	16.159	1.00	16.69
	ATOM	841	OG	SER A 110	0	5.212	44.481	16.508	1.00	15.32
15	ATOM	842	N	HIS A 111	0	6.396	44.395	19.359	1.00	14.60
	ATOM	843	CA	HIS A 111	0	5.724	44.397	20.645	1.00	16.23
	ATOM	844	C	HIS A 111	0	4.349	45.070	20.478	1.00	18.61
	ATOM	845	O	HIS A 111	0	3.713	45.391	21.473	1.00	21.72
	ATOM	846	CB	HIS A 111	0	6.478	45.166	21.721	1.00	14.37
20	ATOM	847	CG	HIS A 111	0	6.392	44.519	23.077	1.00	15.33
	ATOM	848	ND1	HIS A 111	0	5.341	44.660	23.947	1.00	14.55
	ATOM	849	CD2	HIS A 111	0	7.265	43.676	23.680	1.00	14.72
	ATOM	850	CE1	HIS A 111	0	5.589	43.936	25.040	1.00	16.29
	ATOM	851	NE2	HIS A 111	0	6.773	43.326	24.920	1.00	15.35
25	ATOM	852	N	PHE A 112	0	3.950	45.382	19.258	1.00	18.67
	ATOM	853	CA	PHE A 112	0	2.725	46.139	19.037	1.00	19.61
	ATOM	854	C	PHE A 112	0	1.540	45.219	18.777	1.00	19.06
	ATOM	855	O	PHE A 112	0	1.521	44.630	17.707	1.00	17.50
	ATOM	856	CB	PHE A 112	0	2.971	47.113	17.875	1.00	21.16
30	ATOM	857	CG	PHE A 112	0	1.798	48.019	17.611	1.00	23.12
	ATOM	858	CD1	PHE A 112	0	1.456	49.007	18.509	1.00	24.59
	ATOM	859	CD2	PHE A 112	0	1.034	47.886	16.466	1.00	24.82
	ATOM	860	CE1	PHE A 112	0	0.387	49.852	18.312	1.00	24.29
	ATOM	861	CE2	PHE A 112	0	-0.063	48.714	16.243	1.00	25.87
35	ATOM	862	CZ	PHE A 112	0	-0.378	49.698	17.161	1.00	25.17
	ATOM	863	N	GLY A 113	0	0.599	45.092	19.707	1.00	18.05
	ATOM	864	CA	GLY A 113	0	-0.554	44.236	19.433	1.00	19.69
	ATOM	865	C	GLY A 113	0	-0.085	42.819	19.096	1.00	22.25

	ATOM	866	O	GLY A 113	0	0.937	42.333	19.593	1.00	20.55
	ATOM	867	N	THR A 114	0	-0.817	42.173	18.186	1.00	20.91
	ATOM	868	CA	THR A 114	0	-0.493	40.816	17.749	1.00	20.85
	ATOM	869	C	THR A 114	0	0.296	40.774	16.471	1.00	18.04
5	ATOM	870	O	THR A 114	0	0.243	39.783	15.743	1.00	18.26
	ATOM	871	CB	THR A 114	0	-1.847	40.095	17.487	1.00	23.93
	ATOM	872	OG1	THR A 114	0	-2.609	40.910	16.554	1.00	25.68
	ATOM	873	CG2	THR A 114	0	-2.571	39.928	18.792	1.00	23.72
	ATOM	874	N	GLN A 115	0	1.023	41.819	16.095	1.00	17.04
10	ATOM	875	CA	GLN A 115	0	1.792	41.842	14.853	1.00	16.88
	ATOM	876	C	GLN A 115	0	2.881	40.775	14.744	1.00	17.94
	ATOM	877	O	GLN A 115	0	3.203	40.263	13.649	1.00	17.18
	ATOM	878	CB	GLN A 115	0	2.391	43.244	14.757	1.00	17.55
	ATOM	879	CG	GLN A 115	0	3.026	43.601	13.418	1.00	17.65
15	ATOM	880	CD	GLN A 115	0	3.558	45.024	13.418	1.00	17.73
	ATOM	881	OE1	GLN A 115	0	3.257	45.782	12.482	1.00	19.19
	ATOM	882	NE2	GLN A 115	0	4.334	45.421	14.422	1.00	14.70
	ATOM	883	N	TYR A 116	0	3.515	40.416	15.881	1.00	16.32
	ATOM	884	CA	TYR A 116	0	4.561	39.386	15.859	1.00	15.92
20	ATOM	885	C	TYR A 116	0	3.935	38.042	15.479	1.00	17.17
	ATOM	886	O	TYR A 116	0	4.584	37.258	14.786	1.00	16.70
	ATOM	887	CB	TYR A 116	0	5.411	39.312	17.096	1.00	13.45
	ATOM	888	CG	TYR A 116	0	5.209	38.487	18.314	1.00	10.97
	ATOM	889	CD1	TYR A 116	0	5.581	37.146	18.394	1.00	11.02
25	ATOM	890	CD2	TYR A 116	0	4.665	39.052	19.460	1.00	12.18
	ATOM	891	CE1	TYR A 116	0	5.364	36.399	19.532	1.00	10.02
	ATOM	892	CE2	TYR A 116	0	4.491	38.345	20.642	1.00	12.25
	ATOM	893	CZ	TYR A 116	0	4.838	36.996	20.649	1.00	11.73
	ATOM	894	OH	TYR A 116	0	4.642	36.295	21.821	1.00	12.72
30	ATOM	895	N	CYS A 117	0	2.654	37.829	15.842	1.00	17.70
	ATOM	896	CA	CYS A 117	0	1.965	36.617	15.424	1.00	18.01
	ATOM	897	C	CYS A 117	0	1.883	36.496	13.911	1.00	17.55
	ATOM	898	O	CYS A 117	0	1.796	35.352	13.450	1.00	17.50
	ATOM	899	CB	CYS A 117	0	0.565	36.528	16.042	1.00	17.90
35	ATOM	900	SG	CYS A 117	0	0.463	36.895	17.810	1.00	19.72
	ATOM	901	N	ASP A 118	0	2.001	37.568	13.136	1.00	15.51
	ATOM	902	CA	ASP A 118	0	1.953	37.509	11.696	1.00	17.74
	ATOM	903	C	ASP A 118	0	3.341	37.445	11.061	1.00	18.72

ATOM 904 O ASP A 118 0 3.494 37.770 9.865 1.00 17.47
ATOM 905 CB ASP A 118 0 1.142 38.696 11.131 1.00 18.61
ATOM 906 CG ASP A 118 0 -0.356 38.448 11.378 1.00 21.44
ATOM 907 OD1 ASP A 118 0 -0.826 37.331 11.082 1.00 21.55
5 ATOM 908 OD2 ASP A 118 0 -1.064 39.333 11.885 1.00 21.54
ATOM 909 N GLY A 119 0 4.355 37.095 11.882 1.00 18.19
ATOM 910 CA GLY A 119 0 5.671 36.889 11.313 1.00 19.00
ATOM 911 C GLY A 119 0 6.751 37.898 11.590 1.00 19.79
ATOM 912 O GLY A 119 0 7.909 37.640 11.213 1.00 19.97
10 ATOM 913 N LEU A 120 0 6.445 39.011 12.280 1.00 18.24
ATOM 914 CA LEU A 120 0 7.484 39.991 12.569 1.00 16.08
ATOM 915 C LEU A 120 0 8.210 39.565 13.848 1.00 16.53
ATOM 916 O LEU A 120 0 7.933 40.051 14.939 1.00 15.31
ATOM 917 CB LEU A 120 0 6.918 41.389 12.654 1.00 16.22
15 ATOM 918 CG LEU A 120 0 7.916 42.540 12.830 1.00 17.73
ATOM 919 CD1 LEU A 120 0 9.188 42.293 12.043 1.00 17.73
ATOM 920 CD2 LEU A 120 0 7.302 43.880 12.448 1.00 16.66
ATOM 921 N ARG A 121 0 9.144 38.622 13.682 1.00 14.23
ATOM 922 CA ARG A 121 0 9.859 37.985 14.773 1.00 14.19
20 ATOM 923 C ARG A 121 0 11.007 37.152 14.159 1.00 14.09
ATOM 924 O ARG A 121 0 10.936 36.787 12.978 1.00 13.72
ATOM 925 CB ARG A 121 0 8.934 37.061 15.581 1.00 12.30
ATOM 926 CG ARG A 121 0 8.253 35.999 14.728 1.00 12.44
ATOM 927 CD ARG A 121 0 7.303 35.098 15.518 1.00 11.94
25 ATOM 928 NE ARG A 121 0 6.507 34.269 14.604 1.00 12.92
ATOM 929 CZ ARG A 121 0 5.413 33.570 14.933 1.00 10.55
ATOM 930 NH1 ARG A 121 0 4.897 33.483 16.137 1.00 8.12
ATOM 931 NH2 ARG A 121 0 4.803 32.946 13.930 1.00 10.40
ATOM 932 N GLY A 122 0 12.045 36.848 14.937 1.00 12.29
30 ATOM 933 CA GLY A 122 0 13.162 36.078 14.364 1.00 11.42
ATOM 934 C GLY A 122 0 14.185 35.918 15.486 1.00 12.42
ATOM 935 O GLY A 122 0 14.095 36.604 16.509 1.00 11.47
ATOM 936 N PRO A 123 0 15.164 35.075 15.246 1.00 11.82
ATOM 937 CA PRO A 123 0 16.226 34.778 16.190 1.00 12.81
35 ATOM 938 C PRO A 123 0 17.288 35.857 16.258 1.00 12.41
ATOM 939 O PRO A 123 0 17.565 36.580 15.302 1.00 12.03
ATOM 940 CB PRO A 123 0 16.833 33.416 15.713 1.00 12.34
ATOM 941 CG PRO A 123 0 16.567 33.494 14.223 1.00 12.19

ATOM 942 CD PRO A 123 0 15.283 34.289 14.021 1.00 11.35
ATOM 943 N MET A 124 0 17.903 36.027 17.431 1.00 14.30
ATOM 944 CA MET A 124 0 18.959 37.024 17.628 1.00 14.19
ATOM 945 C MET A 124 0 20.040 36.414 18.528 1.00 15.37
5 ATOM 946 O MET A 124 0 19.788 36.067 19.690 1.00 15.41
ATOM 947 CB MET A 124 0 18.411 38.290 18.242 1.00 15.94
ATOM 948 CG MET A 124 0 19.464 39.345 18.604 1.00 19.30
ATOM 949 SD MET A 124 0 18.646 40.875 19.164 1.00 21.94
ATOM 950 CE MET A 124 0 19.918 42.061 18.729 1.00 23.64
10 ATOM 951 N VAL A 125 0 21.212 36.178 17.939 1.00 13.74
ATOM 952 CA VAL A 125 0 22.282 35.479 18.658 1.00 13.87
ATOM 953 C VAL A 125 0 23.478 36.390 18.872 1.00 13.68
ATOM 954 O VAL A 125 0 24.004 36.976 17.945 1.00 14.01
ATOM 955 CB VAL A 125 0 22.672 34.139 18.005 1.00 12.58
15 ATOM 956 CG1 VAL A 125 0 23.787 33.383 18.749 1.00 11.23
ATOM 957 CG2 VAL A 125 0 21.448 33.212 18.033 1.00 12.14
ATOM 958 N ILE A 126 0 23.860 36.535 20.135 1.00 14.48
ATOM 959 CA ILE A 126 0 25.016 37.295 20.557 1.00 14.53
ATOM 960 C ILE A 126 0 26.131 36.348 21.054 1.00 13.58
20 ATOM 961 O ILE A 126 0 26.061 35.791 22.154 1.00 12.93
ATOM 962 CB ILE A 126 0 24.649 38.295 21.662 1.00 14.95
ATOM 963 CG1 ILE A 126 0 23.563 39.302 21.254 1.00 15.29
ATOM 964 CG2 ILE A 126 0 25.901 39.014 22.174 1.00 14.24
ATOM 965 CD1 ILE A 126 0 23.703 39.905 19.896 1.00 15.84
25 ATOM 966 N TYR A 127 0 27.142 36.146 20.236 1.00 13.66
ATOM 967 CA TYR A 127 0 28.278 35.258 20.529 1.00 14.62
ATOM 968 C TYR A 127 0 29.328 35.778 21.507 1.00 15.97
ATOM 969 O TYR A 127 0 29.626 36.977 21.669 1.00 15.27
ATOM 970 CB TYR A 127 0 28.965 34.939 19.176 1.00 14.97
30 ATOM 971 CG TYR A 127 0 28.057 34.136 18.272 1.00 16.10
ATOM 972 CD1 TYR A 127 0 27.823 32.782 18.496 1.00 14.96
ATOM 973 CD2 TYR A 127 0 27.428 34.753 17.177 1.00 16.64
ATOM 974 CE1 TYR A 127 0 26.995 32.057 17.650 1.00 16.16
ATOM 975 CE2 TYR A 127 0 26.576 34.039 16.356 1.00 17.32
35 ATOM 976 CZ TYR A 127 0 26.374 32.692 16.592 1.00 18.16
ATOM 977 OH TYR A 127 0 25.540 31.971 15.756 1.00 20.32
ATOM 978 N ASP A 128 0 29.892 34.895 22.312 1.00 14.36
ATOM 979 CA ASP A 128 0 30.825 35.269 23.365 1.00 16.80

ATOM 980 C ASP A 128 0 32.222 34.863 22.939 1.00 20.11
ATOM 981 O ASP A 128 0 32.508 33.656 22.777 1.00 21.41
ATOM 982 CB ASP A 128 0 30.398 34.568 24.649 1.00 16.65
ATOM 983 CG ASP A 128 0 31.136 35.055 25.874 1.00 18.36
5 ATOM 984 OD1 ASP A 128 0 32.194 35.708 25.750 1.00 18.72
ATOM 985 OD2 ASP A 128 0 30.710 34.819 27.024 1.00 20.03
ATOM 986 N ASP A 129 0 33.148 35.798 22.771 1.00 22.30
ATOM 987 CA ASP A 129 0 34.511 35.389 22.377 1.00 24.39
ATOM 988 C ASP A 129 0 35.282 34.740 23.509 1.00 22.47
10 ATOM 989 O ASP A 129 0 36.275 34.096 23.209 1.00 23.18
ATOM 990 CB ASP A 129 0 35.298 36.490 21.707 1.00 28.46
ATOM 991 CG ASP A 129 0 35.372 37.764 22.516 1.00 31.10
ATOM 992 OD1 ASP A 129 0 35.254 37.652 23.747 1.00 32.87
ATOM 993 OD2 ASP A 129 0 35.553 38.824 21.891 1.00 34.70
15 ATOM 994 N ASN A 130 0 34.829 34.684 24.736 1.00 21.92
ATOM 995 CA ASN A 130 0 35.368 34.015 25.874 1.00 23.74
ATOM 996 C ASN A 130 0 34.382 32.976 26.417 1.00 23.02
ATOM 997 O ASN A 130 0 34.352 32.684 27.616 1.00 20.14
ATOM 998 CB ASN A 130 0 35.686 35.002 27.028 1.00 26.41
20 ATOM 999 CG ASN A 130 0 36.583 36.127 26.550 1.00 30.99
ATOM 1000 OD1 ASN A 130 0 36.187 37.309 26.486 1.00 33.20
ATOM 1001 ND2 ASN A 130 0 37.818 35.769 26.175 1.00 30.96
ATOM 1002 N ASP A 131 0 33.533 32.401 25.561 1.00 23.32
ATOM 1003 CA ASP A 131 0 32.476 31.543 26.127 1.00 21.63
25 ATOM 1004 C ASP A 131 0 33.010 30.514 27.103 1.00 19.56
ATOM 1005 O ASP A 131 0 33.704 29.569 26.766 1.00 19.71
ATOM 1006 CB ASP A 131 0 31.594 30.877 25.063 1.00 22.97
ATOM 1007 CG ASP A 131 0 30.220 30.487 25.591 1.00 24.48
ATOM 1008 OD1 ASP A 131 0 30.181 29.525 26.397 1.00 26.42
30 ATOM 1009 OD2 ASP A 131 0 29.166 31.051 25.212 1.00 22.66
ATOM 1010 N PRO A 132 0 32.491 30.548 28.315 1.00 18.77
ATOM 1011 CA PRO A 132 0 32.759 29.611 29.381 1.00 19.41
ATOM 1012 C PRO A 132 0 32.523 28.141 29.031 1.00 20.89
ATOM 1013 O PRO A 132 0 33.112 27.250 29.672 1.00 19.99
35 ATOM 1014 CB PRO A 132 0 31.799 29.990 30.531 1.00 18.42
ATOM 1015 CG PRO A 132 0 31.589 31.470 30.263 1.00 16.87
ATOM 1016 CD PRO A 132 0 31.645 31.673 28.778 1.00 16.73
ATOM 1017 N HIS A 133 0 31.668 27.836 28.063 1.00 19.47

ATOM 1018 CA HIS A 133 O 31.331 26.465 27.700 1.00 18.79
ATOM 1019 C HIS A 133 O 31.887 26.014 26.372 1.00 19.35
ATOM 1020 O HIS A 133 O 31.503 24.954 25.826 1.00 18.60
ATOM 1021 CB HIS A 133 O 29.789 26.428 27.536 1.00 18.91
5 ATOM 1022 CG HIS A 133 O 29.065 26.242 28.815 1.00 18.13
ATOM 1023 ND1 HIS A 133 O 29.566 25.551 29.877 1.00 19.52
ATOM 1024 CD2 HIS A 133 O 27.817 26.625 29.183 1.00 19.38
ATOM 1025 CE1 HIS A 133 O 28.679 25.530 30.855 1.00 20.08
ATOM 1026 NE2 HIS A 133 O 27.587 26.180 30.457 1.00 19.60
10 ATOM 1027 N ALA A 134 O 32.840 26.801 25.852 1.00 19.40
ATOM 1028 CA ALA A 134 O 33.413 26.465 24.552 1.00 21.88
ATOM 1029 C ALA A 134 O 34.080 25.107 24.525 1.00 21.69
ATOM 1030 O ALA A 134 O 34.120 24.514 23.439 1.00 21.61
ATOM 1031 CB ALA A 134 O 34.418 27.548 24.128 1.00 22.55
15 ATOM 1032 N ALA A 135 O 34.582 24.527 25.622 1.00 21.96
ATOM 1033 CA ALA A 135 O 35.178 23.192 25.483 1.00 23.53
ATOM 1034 C ALA A 135 O 34.144 22.096 25.232 1.00 24.47
ATOM 1035 O ALA A 135 O 34.488 20.936 24.989 1.00 24.77
ATOM 1036 CB ALA A 135 O 35.910 22.820 26.776 1.00 21.92
20 ATOM 1037 N LEU A 136 O 32.862 22.375 25.457 1.00 24.95
ATOM 1038 CA LEU A 136 O 31.800 21.376 25.404 1.00 23.15
ATOM 1039 C LEU A 136 O 31.284 21.076 24.016 1.00 20.31
ATOM 1040 O LEU A 136 O 30.609 20.054 23.924 1.00 19.62
ATOM 1041 CB LEU A 136 O 30.665 21.845 26.318 1.00 24.43
25 ATOM 1042 CG LEU A 136 O 30.501 21.211 27.686 1.00 27.55
ATOM 1043 CD1 LEU A 136 O 31.803 20.721 28.285 1.00 25.75
ATOM 1044 CD2 LEU A 136 O 29.747 22.129 28.644 1.00 26.92
ATOM 1045 N TYR A 137 O 31.565 21.888 22.998 1.00 17.05
ATOM 1046 CA TYR A 137 O 31.085 21.612 21.662 1.00 16.65
30 ATOM 1047 C TYR A 137 O 32.076 22.054 20.599 1.00 17.99
ATOM 1048 O TYR A 137 O 32.965 22.891 20.794 1.00 18.69
ATOM 1049 CB TYR A 137 O 29.724 22.319 21.402 1.00 16.73
ATOM 1050 CG TYR A 137 O 29.711 23.760 21.857 1.00 16.24
ATOM 1051 CD1 TYR A 137 O 29.302 24.108 23.150 1.00 16.00
35 ATOM 1052 CD2 TYR A 137 O 30.159 24.754 21.001 1.00 14.76
ATOM 1053 CE1 TYR A 137 O 29.355 25.448 23.551 1.00 15.32
ATOM 1054 CE2 TYR A 137 O 30.165 26.081 21.396 1.00 15.52
ATOM 1055 CZ TYR A 137 O 29.759 26.410 22.675 1.00 15.61

ATOM 1056 OH TYR A 137 0 29.782 27.731 23.055 1.00 17.56
ATOM 1057 N ASP A 138 0 31.903 21.549 19.393 1.00 19.04
ATOM 1058 CA ASP A 138 0 32.733 21.859 18.253 1.00 20.02
ATOM 1059 C ASP A 138 0 32.139 22.933 17.364 1.00 21.05
5 ATOM 1060 O ASP A 138 0 32.911 23.553 16.631 1.00 21.98
ATOM 1061 CB ASP A 138 0 32.836 20.628 17.315 1.00 20.66
ATOM 1062 CG ASP A 138 0 33.355 19.455 18.089 1.00 22.79
ATOM 1063 OD1 ASP A 138 0 32.744 18.404 18.318 1.00 24.88
ATOM 1064 OD2 ASP A 138 0 34.481 19.675 18.581 1.00 25.34
10 ATOM 1065 N GLU A 139 0 30.825 22.957 17.184 1.00 19.73
ATOM 1066 CA GLU A 139 0 30.223 23.865 16.213 1.00 21.27
ATOM 1067 C GLU A 139 0 29.086 24.668 16.825 1.00 18.97
ATOM 1068 O GLU A 139 0 28.306 24.143 17.608 1.00 16.95
ATOM 1069 CB GLU A 139 0 29.617 23.164 15.000 1.00 24.71
15 ATOM 1070 CG GLU A 139 0 30.509 22.149 14.311 1.00 30.89
ATOM 1071 CD GLU A 139 0 31.633 22.868 13.587 1.00 34.42
ATOM 1072 OE1 GLU A 139 0 31.340 23.869 12.898 1.00 36.87
ATOM 1073 OE2 GLU A 139 0 32.794 22.457 13.705 1.00 37.60
ATOM 1074 N ASP A 140 0 29.057 25.933 16.408 1.00 19.38
20 ATOM 1075 CA ASP A 140 0 28.026 26.847 16.912 1.00 17.89
ATOM 1076 C ASP A 140 0 27.858 27.901 15.837 1.00 18.87
ATOM 1077 O ASP A 140 0 28.705 28.780 15.768 1.00 21.31
ATOM 1078 CB ASP A 140 0 28.438 27.399 18.268 1.00 16.26
ATOM 1079 CG ASP A 140 0 27.445 28.399 18.858 1.00 16.73
25 ATOM 1080 OD1 ASP A 140 0 27.854 29.143 19.781 1.00 14.86
ATOM 1081 OD2 ASP A 140 0 26.287 28.446 18.401 1.00 13.82
ATOM 1082 N ASP A 141 0 26.862 27.844 14.972 1.00 17.34
ATOM 1083 CA ASP A 141 0 26.750 28.859 13.937 1.00 19.52
ATOM 1084 C ASP A 141 0 25.301 29.031 13.520 1.00 19.33
30 ATOM 1085 O ASP A 141 0 24.342 28.513 14.115 1.00 17.91
ATOM 1086 CB ASP A 141 0 27.681 28.509 12.772 1.00 21.66
ATOM 1087 CG ASP A 141 0 27.384 27.151 12.193 1.00 24.87
ATOM 1088 OD1 ASP A 141 0 28.280 26.521 11.567 1.00 28.90
ATOM 1089 OD2 ASP A 141 0 26.271 26.604 12.302 1.00 25.89
35 ATOM 1090 N GLU A 142 0 25.102 29.688 12.387 1.00 19.21
ATOM 1091 CA GLU A 142 0 23.775 29.945 11.880 1.00 20.84
ATOM 1092 C GLU A 142 0 23.052 28.636 11.592 1.00 19.95
ATOM 1093 O GLU A 142 0 21.844 28.656 11.665 1.00 18.73

ATOM 1094 CB GLU A 142 O 23.771 30.894 10.699 1.00 23.40
ATOM 1095 CG GLU A 142 O 24.295 30.301 9.407 1.00 27.22
ATOM 1096 CD GLU A 142 O 25.718 30.826 9.221 1.00 32.36
ATOM 1097 OE1 GLU A 142 O 26.513 30.920 10.206 1.00 31.87
5 ATOM 1098 OE2 GLU A 142 O 25.968 31.136 8.023 1.00 35.76
ATOM 1099 N ASN A 143 O 23.723 27.508 11.378 1.00 20.40
ATOM 1100 CA ASN A 143 O 23.105 26.227 11.151 1.00 19.61
ATOM 1101 C ASN A 143 O 22.785 25.468 12.421 1.00 18.35
ATOM 1102 O ASN A 143 O 22.317 24.337 12.325 1.00 15.65
10 ATOM 1103 CB ASN A 143 O 24.024 25.401 10.229 1.00 23.57
ATOM 1104 CG ASN A 143 O 24.133 26.067 8.857 1.00 26.63
ATOM 1105 OD1 ASN A 143 O 25.220 26.376 8.356 1.00 29.89
ATOM 1106 ND2 ASN A 143 O 23.049 26.342 8.175 1.00 25.46
ATOM 1107 N THR A 144 O 23.067 25.974 13.632 1.00 16.76
15 ATOM 1108 CA THR A 144 O 22.678 25.257 14.825 1.00 15.40
ATOM 1109 C THR A 144 O 21.556 25.976 15.577 1.00 15.58
ATOM 1110 O THR A 144 O 21.361 25.776 16.789 1.00 17.88
ATOM 1111 CB THR A 144 O 23.848 25.018 15.785 1.00 16.43
ATOM 1112 OG1 THR A 144 O 24.296 26.270 16.297 1.00 14.82
20 ATOM 1113 CG2 THR A 144 O 24.935 24.215 15.104 1.00 15.98
ATOM 1114 N ILE A 145 O 20.821 26.834 14.898 1.00 13.92
ATOM 1115 CA ILE A 145 O 19.697 27.550 15.500 1.00 14.31
ATOM 1116 C ILE A 145 O 18.392 26.835 15.139 1.00 13.84
ATOM 1117 O ILE A 145 O 18.127 26.478 13.996 1.00 12.32
25 ATOM 1118 CB ILE A 145 O 19.641 29.016 15.011 1.00 15.15
ATOM 1119 CG1 ILE A 145 O 20.881 29.726 15.608 1.00 16.27
ATOM 1120 CG2 ILE A 145 O 18.346 29.736 15.375 1.00 13.14
ATOM 1121 CD1 ILE A 145 O 21.256 31.006 14.892 1.00 16.72
ATOM 1122 N ILE A 146 O 17.550 26.644 16.141 1.00 13.54
30 ATOM 1123 CA ILE A 146 O 16.263 25.983 15.926 1.00 13.70
ATOM 1124 C ILE A 146 O 15.167 26.899 16.494 1.00 12.67
ATOM 1125 O ILE A 146 O 15.155 27.082 17.714 1.00 10.09
ATOM 1126 CB ILE A 146 O 16.183 24.580 16.553 1.00 15.97
ATOM 1127 CG1 ILE A 146 O 17.280 23.621 16.012 1.00 17.29
35 ATOM 1128 CG2 ILE A 146 O 14.831 23.937 16.207 1.00 14.52
ATOM 1129 CD1 ILE A 146 O 17.359 22.340 16.832 1.00 18.45
ATOM 1130 N THR A 147 O 14.360 27.507 15.610 1.00 10.81
ATOM 1131 CA THR A 147 O 13.240 28.310 16.102 1.00 12.54

ATOM 1132 C THR A 147 O 11.912 27.526 15.988 1.00 13.55
ATOM 1133 O THR A 147 O 11.655 26.724 15.076 1.00 12.65
ATOM 1134 CB THR A 147 O 13.078 29.642 15.351 1.00 12.37
ATOM 1135 OG1 THR A 147 O 12.728 29.311 14.005 1.00 10.17
5 ATOM 1136 CG2 THR A 147 O 14.381 30.479 15.402 1.00 11.93
ATOM 1137 N LEU A 148 O 11.062 27.715 16.972 1.00 12.48
ATOM 1138 CA LEU A 148 O 9.719 27.171 17.039 1.00 13.90
ATOM 1139 C LEU A 148 O 8.719 28.350 16.916 1.00 15.44
ATOM 1140 O LEU A 148 O 8.860 29.383 17.579 1.00 15.28
10 ATOM 1141 CB LEU A 148 O 9.501 26.419 18.340 1.00 12.83
ATOM 1142 CG LEU A 148 O 10.502 25.293 18.669 1.00 12.45
ATOM 1143 CD1 LEU A 148 O 10.154 24.669 19.997 1.00 11.49
ATOM 1144 CD2 LEU A 148 O 10.552 24.203 17.597 1.00 11.82
ATOM 1145 N ALA A 149 O 7.726 28.241 16.053 1.00 14.08
15 ATOM 1146 CA ALA A 149 O 6.725 29.256 15.825 1.00 15.37
ATOM 1147 C ALA A 149 O 5.336 28.658 15.521 1.00 16.78
ATOM 1148 O ALA A 149 O 5.198 27.637 14.841 1.00 15.78
ATOM 1149 CB ALA A 149 O 7.068 30.127 14.628 1.00 13.22
ATOM 1150 N ASP A 150 O 4.337 29.344 16.065 1.00 16.39
20 ATOM 1151 CA ASP A 150 O 2.941 28.995 15.864 1.00 15.96
ATOM 1152 C ASP A 150 O 2.515 29.758 14.624 1.00 16.53
ATOM 1153 O ASP A 150 O 2.960 30.905 14.483 1.00 18.17
ATOM 1154 CB ASP A 150 O 2.066 29.440 17.027 1.00 16.78
ATOM 1155 CG ASP A 150 O 2.345 30.836 17.561 1.00 18.15
25 ATOM 1156 OD1 ASP A 150 O 3.410 31.472 17.347 1.00 16.29
ATOM 1157 OD2 ASP A 150 O 1.414 31.311 18.264 1.00 17.83
ATOM 1158 N TRP A 151 O 1.776 29.157 13.726 1.00 15.62
ATOM 1159 CA TRP A 151 O 1.366 29.828 12.499 1.00 14.37
ATOM 1160 C TRP A 151 O -0.140 29.688 12.226 1.00 14.78
30 ATOM 1161 O TRP A 151 O -0.679 28.607 12.425 1.00 13.41
ATOM 1162 CB TRP A 151 O 2.229 29.239 11.373 1.00 13.56
ATOM 1163 CG TRP A 151 O 2.046 30.004 10.097 1.00 13.31
ATOM 1164 CD1 TRP A 151 O 1.385 29.545 8.991 1.00 13.60
ATOM 1165 CD2 TRP A 151 O 2.484 31.316 9.806 1.00 15.46
35 ATOM 1166 NE1 TRP A 151 O 1.412 30.497 8.017 1.00 14.49
ATOM 1167 CE2 TRP A 151 O 2.061 31.605 8.473 1.00 15.53
ATOM 1168 CE3 TRP A 151 O 3.189 32.294 10.522 1.00 16.28
ATOM 1169 CZ2 TRP A 151 O 2.306 32.822 7.846 1.00 16.57

ATOM 1170 CZ3 TRP A 151 O 3.436 33.505 9.881 1.00 18.22
ATOM 1171 CH2 TRP A 151 O 3.003 33.766 8.560 1.00 18.00
ATOM 1172 N TYR A 152 O -0.818 30.745 11.812 1.00 15.59
ATOM 1173 CA TYR A 152 O -2.266 30.813 11.614 1.00 17.47
5 ATOM 1174 C TYR A 152 O -2.556 31.086 10.149 1.00 18.79
ATOM 1175 O TYR A 152 O -1.830 31.856 9.521 1.00 19.15
ATOM 1176 CB TYR A 152 O -2.981 31.930 12.434 1.00 16.37
ATOM 1177 CG TYR A 152 O -2.539 31.776 13.887 1.00 16.24
ATOM 1178 CD1 TYR A 152 O -1.313 32.303 14.318 1.00 15.22
10 ATOM 1179 CD2 TYR A 152 O -3.267 30.998 14.767 1.00 15.29
ATOM 1180 CE1 TYR A 152 O -0.889 32.135 15.626 1.00 14.67
ATOM 1181 CE2 TYR A 152 O -2.831 30.799 16.054 1.00 16.52
ATOM 1182 CZ TYR A 152 O -1.632 31.369 16.474 1.00 16.12
ATOM 1183 OH TYR A 152 O -1.219 31.139 17.771 1.00 16.36
15 ATOM 1184 N HIS A 153 O -3.590 30.445 9.599 1.00 20.39
ATOM 1185 CA HIS A 153 O -3.899 30.683 8.181 1.00 21.90
ATOM 1186 C HIS A 153 O -4.642 31.988 7.952 1.00 21.94
ATOM 1187 O HIS A 153 O -4.750 32.386 6.784 1.00 22.32
ATOM 1188 CB HIS A 153 O -4.592 29.483 7.549 1.00 22.29
20 ATOM 1189 CG HIS A 153 O -3.651 28.319 7.385 1.00 24.52
ATOM 1190 ND1 HIS A 153 O -4.071 27.022 7.258 1.00 24.25
ATOM 1191 CD2 HIS A 153 O -2.286 28.274 7.338 1.00 23.32
ATOM 1192 CE1 HIS A 153 O -3.034 26.220 7.124 1.00 24.15
ATOM 1193 NE2 HIS A 153 O -1.956 26.965 7.178 1.00 24.30
25 ATOM 1194 N ILE A 154 O -5.084 32.718 8.972 1.00 21.86
ATOM 1195 CA ILE A 154 O -5.611 34.046 8.686 1.00 24.39
ATOM 1196 C ILE A 154 O -4.904 35.051 9.597 1.00 22.15
ATOM 1197 O ILE A 154 O -4.517 34.732 10.698 1.00 20.15
ATOM 1198 CB ILE A 154 O -7.120 34.281 8.693 1.00 26.43
30 ATOM 1199 CG1 ILE A 154 O -7.682 34.498 10.099 1.00 27.66
ATOM 1200 CG2 ILE A 154 O -7.947 33.251 7.928 1.00 26.60
ATOM 1201 CD1 ILE A 154 O -7.312 33.468 11.125 1.00 28.86
ATOM 1202 N PRO A 155 O -4.723 36.255 9.105 1.00 23.79
ATOM 1203 CA PRO A 155 O -4.108 37.361 9.816 1.00 23.66
35 ATOM 1204 C PRO A 155 O -4.604 37.435 11.252 1.00 24.59
ATOM 1205 O PRO A 155 O -5.814 37.317 11.539 1.00 24.53
ATOM 1206 CB PRO A 155 O -4.546 38.634 9.077 1.00 24.20
ATOM 1207 CG PRO A 155 O -4.990 38.162 7.733 1.00 23.40

ATOM 1208 CD PRO A 155 0 -5.207 36.672 7.776 1.00 23.41
ATOM 1209 N ALA A 156 0 -3.704 37.776 12.178 1.00 24.03
ATOM 1210 CA ALA A 156 0 -4.066 37.806 13.588 1.00 25.45
ATOM 1211 C ALA A 156 0 -5.262 38.667 13.992 1.00 24.85
5 ATOM 1212 O ALA A 156 0 -6.083 38.217 14.798 1.00 22.79
ATOM 1213 CB ALA A 156 0 -2.866 38.045 14.492 1.00 24.30
ATOM 1214 N PRO A 157 0 -5.393 39.873 13.518 1.00 25.98
ATOM 1215 CA PRO A 157 0 -6.521 40.741 13.807 1.00 28.77
ATOM 1216 C PRO A 157 0 -7.840 40.092 13.406 1.00 30.78
10 ATOM 1217 O PRO A 157 0 -8.798 40.416 14.105 1.00 34.62
ATOM 1218 CB PRO A 157 0 -6.324 42.071 13.068 1.00 26.56
ATOM 1219 CG PRO A 157 0 -4.859 42.013 12.762 1.00 25.98
ATOM 1220 CD PRO A 157 0 -4.480 40.547 12.585 1.00 25.96
ATOM 1221 N SER A 158 0 -7.950 39.207 12.430 1.00 30.95
15 ATOM 1222 CA SER A 158 0 -9.174 38.549 12.047 1.00 31.32
ATOM 1223 C SER A 158 0 -9.450 37.288 12.851 1.00 33.61
ATOM 1224 O SER A 158 0 -10.472 36.633 12.575 1.00 34.71
ATOM 1225 CB SER A 158 0 -9.176 38.118 10.577 1.00 30.14
ATOM 1226 OG SER A 158 0 -8.942 39.187 9.665 1.00 31.20
20 ATOM 1227 N ILE A 159 0 -8.588 36.875 13.773 1.00 34.23
ATOM 1228 CA ILE A 159 0 -8.918 35.642 14.491 1.00 36.40
ATOM 1229 C ILE A 159 0 -10.189 35.896 15.309 1.00 39.20
ATOM 1230 O ILE A 159 0 -10.294 36.875 16.046 1.00 39.00
ATOM 1231 CB ILE A 159 0 -7.769 35.121 15.360 1.00 35.56
25 ATOM 1232 CG1 ILE A 159 0 -6.713 34.408 14.485 1.00 35.58
ATOM 1233 CG2 ILE A 159 0 -8.262 34.184 16.452 1.00 34.97
ATOM 1234 CD1 ILE A 159 0 -5.388 34.268 15.212 1.00 34.91
ATOM 1235 N GLN A 160 0 -11.137 34.969 15.196 1.00 41.53
ATOM 1236 CA GLN A 160 0 -12.398 35.056 15.946 1.00 42.57
30 ATOM 1237 C GLN A 160 0 -12.466 33.914 16.949 1.00 40.51
ATOM 1238 O GLN A 160 0 -12.308 32.741 16.585 1.00 41.96
ATOM 1239 CB GLN A 160 0 -13.542 35.062 14.937 1.00 45.52
ATOM 1240 CG GLN A 160 0 -14.814 34.319 15.267 1.00 48.48
ATOM 1241 CD GLN A 160 0 -15.570 33.799 14.055 1.00 50.12
35 ATOM 1242 OE1 GLN A 160 0 -16.204 32.737 14.118 1.00 50.77
ATOM 1243 NE2 GLN A 160 0 -15.504 34.520 12.940 1.00 51.22
ATOM 1244 N GLY A 161 0 -12.667 34.191 18.225 1.00 37.10
ATOM 1245 CA GLY A 161 0 -12.722 33.112 19.208 1.00 34.91

ATOM 1246 C GLY A 161 0 -11.305 32.826 19.696 1.00 34.13
ATOM 1247 O GLY A 161 0 -10.412 33.648 19.451 1.00 32.40
ATOM 1248 N ALA A 162 0 -11.158 31.738 20.433 1.00 33.01
ATOM 1249 CA ALA A 162 0 -9.864 31.355 20.988 1.00 32.39
5 ATOM 1250 C ALA A 162 0 -8.927 30.902 19.880 1.00 31.53
ATOM 1251 O ALA A 162 0 -9.285 30.132 19.013 1.00 30.73
ATOM 1252 CB ALA A 162 0 -10.058 30.263 22.010 1.00 34.12
ATOM 1253 N ALA A 163 0 -7.731 31.475 19.851 1.00 32.06
ATOM 1254 CA ALA A 163 0 -6.740 31.202 18.814 1.00 30.85
10 ATOM 1255 C ALA A 163 0 -6.219 29.774 18.897 1.00 29.40
ATOM 1256 O ALA A 163 0 -5.967 29.223 19.965 1.00 30.49
ATOM 1257 CB ALA A 163 0 -5.607 32.217 18.911 1.00 30.29
ATOM 1258 N GLN A 164 0 -6.101 29.130 17.754 1.00 28.69
ATOM 1259 CA GLN A 164 0 -5.616 27.769 17.612 1.00 28.24
15 ATOM 1260 C GLN A 164 0 -4.720 27.744 16.370 1.00 25.02
ATOM 1261 O GLN A 164 0 -5.157 28.046 15.260 1.00 23.64
ATOM 1262 CB GLN A 164 0 -6.732 26.756 17.361 1.00 31.99
ATOM 1263 CG GLN A 164 0 -7.885 26.640 18.319 1.00 36.24
ATOM 1264 CD GLN A 164 0 -7.535 25.809 19.540 1.00 40.95
20 ATOM 1265 OE1 GLN A 164 0 -7.863 26.166 20.684 1.00 43.34
ATOM 1266 NE2 GLN A 164 0 -6.864 24.672 19.328 1.00 41.86
ATOM 1267 N PRO A 165 0 -3.446 27.406 16.549 1.00 22.68
ATOM 1268 CA PRO A 165 0 -2.501 27.360 15.463 1.00 20.43
ATOM 1269 C PRO A 165 0 -2.856 26.294 14.429 1.00 18.89
25 ATOM 1270 O PRO A 165 0 -3.286 25.176 14.715 1.00 18.00
ATOM 1271 CB PRO A 165 0 -1.126 27.075 16.088 1.00 20.83
ATOM 1272 CG PRO A 165 0 -1.476 26.651 17.479 1.00 22.05
ATOM 1273 CD PRO A 165 0 -2.873 27.081 17.851 1.00 21.57
ATOM 1274 N ASP A 166 0 -2.667 26.608 13.169 1.00 17.50
30 ATOM 1275 CA ASP A 166 0 -2.829 25.677 12.059 1.00 19.82
ATOM 1276 C ASP A 166 0 -1.591 24.788 11.930 1.00 19.47
ATOM 1277 O ASP A 166 0 -1.692 23.649 11.506 1.00 19.38
ATOM 1278 CB ASP A 166 0 -3.005 26.413 10.727 1.00 19.75
ATOM 1279 CG ASP A 166 0 -4.347 27.162 10.728 1.00 21.69
35 ATOM 1280 OD1 ASP A 166 0 -5.376 26.480 10.593 1.00 22.24
ATOM 1281 OD2 ASP A 166 0 -4.384 28.392 10.885 1.00 22.13
ATOM 1282 N ALA A 167 0 -0.435 25.386 12.231 1.00 18.54
ATOM 1283 CA ALA A 167 0 0.806 24.614 12.142 1.00 18.74

	ATOM	1284	C	ALA A 167	0	1.867	25.056	13.148	1.00	17.69
	ATOM	1285	O	ALA A 167	0	1.874	26.147	13.715	1.00	15.83
	ATOM	1286	CB	ALA A 167	0	1.387	24.767	10.735	1.00	17.32
	ATOM	1287	N	THR A 168	0	2.826	24.166	13.335	1.00	18.40
5	ATOM	1288	CA	THR A 168	0	4.087	24.402	14.027	1.00	14.85
	ATOM	1289	C	THR A 168	0	5.180	24.553	12.955	1.00	15.24
	ATOM	1290	O	THR A 168	0	5.402	23.737	12.071	1.00	12.99
	ATOM	1291	CB	THR A 168	0	4.530	23.235	14.900	1.00	14.31
	ATOM	1292	OG1	THR A 168	0	3.558	23.068	15.920	1.00	12.30
10	ATOM	1293	CG2	THR A 168	0	5.921	23.516	15.524	1.00	13.60
	ATOM	1294	N	LEU A 169	0	5.867	25.686	12.973	1.00	16.69
	ATOM	1295	CA	LEU A 169	0	6.976	26.002	12.071	1.00	14.74
	ATOM	1296	C	LEU A 169	0	8.285	25.747	12.833	1.00	14.34
	ATOM	1297	O	LEU A 169	0	8.497	26.259	13.942	1.00	12.34
15	ATOM	1298	CB	LEU A 169	0	6.890	27.471	11.652	1.00	14.90
	ATOM	1299	CG	LEU A 169	0	6.071	27.845	10.428	1.00	17.83
	ATOM	1300	CD1	LEU A 169	0	4.978	26.825	10.133	1.00	15.89
	ATOM	1301	CD2	LEU A 169	0	5.500	29.254	10.443	1.00	16.43
	ATOM	1302	N	ILE A 170	0	9.141	24.923	12.255	1.00	14.06
20	ATOM	1303	CA	ILE A 170	0	10.472	24.659	12.819	1.00	14.01
	ATOM	1304	C	ILE A 170	0	11.397	25.312	11.784	1.00	15.19
	ATOM	1305	O	ILE A 170	0	11.307	25.009	10.585	1.00	14.73
	ATOM	1306	CB	ILE A 170	0	10.807	23.179	13.025	1.00	14.75
	ATOM	1307	CG1	ILE A 170	0	9.849	22.605	14.069	1.00	13.74
25	ATOM	1308	CG2	ILE A 170	0	12.268	22.983	13.468	1.00	13.47
	ATOM	1309	CD1	ILE A 170	0	9.915	21.134	14.385	1.00	15.26
	ATOM	1310	N	ASN A 171	0	12.166	26.317	12.208	1.00	13.13
	ATOM	1311	CA	ASN A 171	0	12.992	27.042	11.250	1.00	13.74
	ATOM	1312	C	ASN A 171	0	12.163	27.517	10.083	1.00	13.71
30	ATOM	1313	O	ASN A 171	0	12.562	27.381	8.921	1.00	13.20
	ATOM	1314	CB	ASN A 171	0	14.220	26.209	10.793	1.00	14.42
	ATOM	1315	CG	ASN A 171	0	15.236	26.157	11.940	1.00	16.29
	ATOM	1316	OD1	ASN A 171	0	15.123	26.983	12.875	1.00	16.78
	ATOM	1317	ND2	ASN A 171	0	16.203	25.259	11.964	1.00	14.32
35	ATOM	1318	N	GLY A 172	0	10.967	28.074	10.337	1.00	14.17
	ATOM	1319	CA	GLY A 172	0	10.157	28.619	9.270	1.00	11.74
	ATOM	1320	C	GLY A 172	0	9.387	27.636	8.433	1.00	14.40
	ATOM	1321	O	GLY A 172	0	8.783	28.064	7.441	1.00	15.60

	ATOM	1322	N	LYS A 173	0	9.430	26.319	8.669	1.00	13.84
	ATOM	1323	CA	LYS A 173	0	8.777	25.363	7.794	1.00	13.67
	ATOM	1324	C	LYS A 173	0	8.038	24.303	8.589	1.00	13.59
	ATOM	1325	O	LYS A 173	0	8.445	24.027	9.723	1.00	11.70
5	ATOM	1326	CB	LYS A 173	0	9.775	24.645	6.875	1.00	17.03
	ATOM	1327	CG	LYS A 173	0	10.704	25.577	6.118	1.00	17.63
	ATOM	1328	CD	LYS A 173	0	11.508	24.796	5.094	1.00	20.84
	ATOM	1329	CE	LYS A 173	0	12.213	25.821	4.198	1.00	22.63
	ATOM	1330	NZ	LYS A 173	0	13.304	25.087	3.499	1.00	28.08
10	ATOM	1331	N	GLY A 174	0	6.922	23.821	8.014	1.00	12.28
	ATOM	1332	CA	GLY A 174	0	6.178	22.768	8.753	1.00	11.45
	ATOM	1333	C	GLY A 174	0	4.958	22.409	7.896	1.00	13.55
	ATOM	1334	O	GLY A 174	0	4.823	22.877	6.760	1.00	13.37
	ATOM	1335	N	ARG A 175	0	4.042	21.619	8.432	1.00	14.54
15	ATOM	1336	CA	ARG A 175	0	2.859	21.201	7.687	1.00	16.62
	ATOM	1337	C	ARG A 175	0	1.598	21.336	8.541	1.00	17.67
	ATOM	1338	O	ARG A 175	0	1.727	21.264	9.769	1.00	18.41
	ATOM	1339	CB	ARG A 175	0	2.985	19.718	7.292	1.00	16.05
	ATOM	1340	CG	ARG A 175	0	3.894	19.472	6.116	1.00	16.55
20	ATOM	1341	CD	ARG A 175	0	4.358	18.009	6.108	1.00	17.70
	ATOM	1342	NE	ARG A 175	0	5.421	17.861	5.097	1.00	17.74
	ATOM	1343	CZ	ARG A 175	0	5.971	16.667	4.792	1.00	17.63
	ATOM	1344	NH1	ARG A 175	0	6.918	16.665	3.866	1.00	17.25
	ATOM	1345	NH2	ARG A 175	0	5.594	15.538	5.375	1.00	14.80
25	ATOM	1346	N	TYR A 176	0	0.429	21.438	7.908	1.00	18.08
	ATOM	1347	CA	TYR A 176	0	-0.800	21.481	8.746	1.00	18.67
	ATOM	1348	C	TYR A 176	0	-1.613	20.200	8.509	1.00	18.24
	ATOM	1349	O	TYR A 176	0	-1.417	19.534	7.483	1.00	17.67
	ATOM	1350	CB	TYR A 176	0	-1.635	22.709	8.462	1.00	17.21
30	ATOM	1351	CG	TYR A 176	0	-2.102	22.931	7.053	1.00	16.36
	ATOM	1352	CD1	TYR A 176	0	-1.246	23.433	6.089	1.00	14.84
	ATOM	1353	CD2	TYR A 176	0	-3.441	22.676	6.677	1.00	17.26
	ATOM	1354	CE1	TYR A 176	0	-1.640	23.686	4.796	1.00	16.01
	ATOM	1355	CE2	TYR A 176	0	-3.862	22.908	5.361	1.00	16.65
35	ATOM	1356	CZ	TYR A 176	0	-2.967	23.407	4.432	1.00	17.65
	ATOM	1357	OH	TYR A 176	0	-3.347	23.678	3.131	1.00	17.81
	ATOM	1358	N	VAL A 177	0	-2.427	19.815	9.464	1.00	18.46
	ATOM	1359	CA	VAL A 177	0	-3.200	18.571	9.303	1.00	21.18

	ATOM	1360	C	VAL A 177	0	-4.090	18.639	8.073	1.00	21.50
	ATOM	1361	O	VAL A 177	0	-4.788	19.620	7.858	1.00	21.85
	ATOM	1362	CB	VAL A 177	0	-4.072	18.306	10.532	1.00	22.29
	ATOM	1363	CG1	VAL A 177	0	-4.802	16.974	10.370	1.00	21.70
5	ATOM	1364	CG2	VAL A 177	0	-3.205	18.289	11.784	1.00	22.43
	ATOM	1365	N	GLY A 178	0	-3.989	17.707	7.142	1.00	21.84
	ATOM	1366	CA	GLY A 178	0	-4.761	17.742	5.918	1.00	20.35
	ATOM	1367	C	GLY A 178	0	-4.047	18.602	4.900	1.00	22.84
	ATOM	1368	O	GLY A 178	0	-4.576	18.673	3.774	1.00	23.86
10	ATOM	1369	N	GLY A 179	0	-2.887	19.220	5.210	1.00	21.49
	ATOM	1370	CA	GLY A 179	0	-2.291	20.060	4.149	1.00	19.94
	ATOM	1371	C	GLY A 179	0	-1.389	19.250	3.242	1.00	18.86
	ATOM	1372	O	GLY A 179	0	-1.192	18.052	3.399	1.00	19.35
	ATOM	1373	N	PRO A 180	0	-0.800	19.905	2.268	1.00	19.42
15	ATOM	1374	CA	PRO A 180	0	0.150	19.328	1.335	1.00	19.92
	ATOM	1375	C	PRO A 180	0	1.430	18.922	2.041	1.00	20.56
	ATOM	1376	O	PRO A 180	0	1.731	19.399	3.145	1.00	20.66
	ATOM	1377	CB	PRO A 180	0	0.503	20.399	0.298	1.00	19.52
	ATOM	1378	CG	PRO A 180	0	-0.144	21.639	0.829	1.00	19.70
20	ATOM	1379	CD	PRO A 180	0	-0.930	21.356	2.081	1.00	19.79
	ATOM	1380	N	ALA A 181	0	2.213	18.059	1.403	1.00	21.19
	ATOM	1381	CA	ALA A 181	0	3.489	17.644	2.007	1.00	23.04
	ATOM	1382	C	ALA A 181	0	4.548	18.723	1.772	1.00	21.24
	ATOM	1383	O	ALA A 181	0	5.465	18.522	0.986	1.00	23.93
25	ATOM	1384	CB	ALA A 181	0	3.928	16.305	1.435	1.00	21.73
	ATOM	1385	N	ALA A 182	0	4.398	19.905	2.315	1.00	19.30
	ATOM	1386	CA	ALA A 182	0	5.357	20.987	2.183	1.00	18.39
	ATOM	1387	C	ALA A 182	0	6.706	20.549	2.791	1.00	17.36
	ATOM	1388	O	ALA A 182	0	6.858	19.712	3.701	1.00	16.16
30	ATOM	1389	CB	ALA A 182	0	4.826	22.209	2.932	1.00	17.68
	ATOM	1390	N	GLU A 183	0	7.739	21.103	2.210	1.00	18.23
	ATOM	1391	CA	GLU A 183	0	9.134	20.882	2.599	1.00	20.90
	ATOM	1392	C	GLU A 183	0	9.381	21.078	4.093	1.00	18.87
	ATOM	1393	O	GLU A 183	0	8.976	22.073	4.699	1.00	17.80
35	ATOM	1394	CB	GLU A 183	0	9.990	21.875	1.820	1.00	25.16
	ATOM	1395	CG	GLU A 183	0	11.508	21.760	1.962	1.00	31.31
	ATOM	1396	CD	GLU A 183	0	12.075	22.803	0.998	1.00	34.38
	ATOM	1397	OE1	GLU A 183	0	11.901	22.609	-0.229	1.00	36.88

ATOM 1398 OE2 GLU A 183 O 12.619 23.809 1.484 1.00 36.18
ATOM 1399 N LEU A 184 O 10.010 20.093 4.691 1.00 17.33
ATOM 1400 CA LEU A 184 O 10.388 20.155 6.098 1.00 18.77
ATOM 1401 C LEU A 184 O 11.780 20.743 6.255 1.00 19.44
5 ATOM 1402 O LEU A 184 O 12.582 20.687 5.314 1.00 20.95
ATOM 1403 CB LEU A 184 O 10.331 18.735 6.673 1.00 18.11
ATOM 1404 CG LEU A 184 O 8.915 18.125 6.577 1.00 19.10
ATOM 1405 CD1 LEU A 184 O 8.887 16.734 7.178 1.00 18.87
ATOM 1406 CD2 LEU A 184 O 7.868 19.026 7.229 1.00 18.69
10 ATOM 1407 N SER A 185 O 12.054 21.342 7.398 1.00 18.46
ATOM 1408 CA SER A 185 O 13.366 21.883 7.699 1.00 17.73
ATOM 1409 C SER A 185 O 14.298 20.699 8.018 1.00 16.95
ATOM 1410 O SER A 185 O 13.883 19.710 8.629 1.00 15.84
ATOM 1411 CB SER A 185 O 13.303 22.786 8.934 1.00 17.34
15 ATOM 1412 OG SER A 185 O 12.846 24.073 8.560 1.00 18.09
ATOM 1413 N ILE A 186 O 15.533 20.845 7.587 1.00 16.43
ATOM 1414 CA ILE A 186 O 16.595 19.858 7.821 1.00 16.85
ATOM 1415 C ILE A 186 O 17.725 20.491 8.626 1.00 15.86
ATOM 1416 O ILE A 186 O 18.178 21.605 8.387 1.00 11.67
20 ATOM 1417 CB ILE A 186 O 17.193 19.390 6.471 1.00 18.77
ATOM 1418 CG1 ILE A 186 O 16.048 18.895 5.557 1.00 19.78
ATOM 1419 CG2 ILE A 186 O 18.167 18.241 6.697 1.00 18.53
ATOM 1420 CD1 ILE A 186 O 16.464 18.731 4.110 1.00 22.35
ATOM 1421 N VAL A 187 O 18.114 19.840 9.703 1.00 16.18
25 ATOM 1422 CA VAL A 187 O 19.243 20.287 10.505 1.00 16.63
ATOM 1423 C VAL A 187 O 20.362 19.239 10.231 1.00 17.36
ATOM 1424 O VAL A 187 O 20.158 18.046 10.505 1.00 15.19
ATOM 1425 CB VAL A 187 O 18.928 20.323 11.984 1.00 16.68
ATOM 1426 CG1 VAL A 187 O 20.198 20.622 12.796 1.00 16.82
30 ATOM 1427 CG2 VAL A 187 O 17.874 21.375 12.275 1.00 17.07
ATOM 1428 N ASN A 188 O 21.449 19.695 9.634 1.00 16.45
ATOM 1429 CA ASN A 188 O 22.528 18.766 9.272 1.00 19.84
ATOM 1430 C ASN A 188 O 23.598 18.597 10.349 1.00 19.41
ATOM 1431 O ASN A 188 O 24.051 19.618 10.862 1.00 21.31
35 ATOM 1432 CB ASN A 188 O 23.209 19.246 7.976 1.00 18.78
ATOM 1433 CG ASN A 188 O 22.249 19.186 6.797 1.00 20.77
ATOM 1434 OD1 ASN A 188 O 21.734 20.201 6.305 1.00 21.70
ATOM 1435 ND2 ASN A 188 O 21.995 17.985 6.286 1.00 20.52

ATOM 1436 N VAL A 189 0 24.024 17.389 10.681 1.00 17.35
ATOM 1437 CA VAL A 189 0 25.098 17.164 11.617 1.00 17.93
ATOM 1438 C VAL A 189 0 26.091 16.135 11.046 1.00 19.82
ATOM 1439 O VAL A 189 0 25.773 15.392 10.109 1.00 18.90
5 ATOM 1440 CB VAL A 189 0 24.660 16.684 13.009 1.00 18.43
ATOM 1441 CG1 VAL A 189 0 23.931 17.796 13.766 1.00 18.89
ATOM 1442 CG2 VAL A 189 0 23.760 15.449 12.965 1.00 15.94
ATOM 1443 N GLU A 190 0 27.242 15.993 11.688 1.00 21.48
ATOM 1444 CA GLU A 190 0 28.220 14.972 11.274 1.00 24.63
10 ATOM 1445 C GLU A 190 0 28.514 14.065 12.469 1.00 23.06
ATOM 1446 O GLU A 190 0 28.797 14.650 13.522 1.00 21.04
ATOM 1447 CB GLU A 190 0 29.569 15.551 10.860 1.00 26.79
ATOM 1448 CG GLU A 190 0 29.571 16.355 9.567 1.00 32.24
ATOM 1449 CD GLU A 190 0 30.951 16.990 9.351 1.00 34.67
15 ATOM 1450 OE1 GLU A 190 0 31.927 16.199 9.305 1.00 35.41
ATOM 1451 OE2 GLU A 190 0 30.999 18.236 9.264 1.00 35.78
ATOM 1452 N GLN A 191 0 28.490 12.752 12.256 1.00 21.94
ATOM 1453 CA GLN A 191 0 28.768 11.824 13.357 1.00 21.92
ATOM 1454 C GLN A 191 0 30.121 12.151 13.984 1.00 22.68
20 ATOM 1455 O GLN A 191 0 31.052 12.516 13.251 1.00 23.08
ATOM 1456 CB GLN A 191 0 28.797 10.400 12.820 1.00 22.01
ATOM 1457 CG GLN A 191 0 28.795 9.347 13.917 1.00 23.87
ATOM 1458 CD GLN A 191 0 28.846 7.966 13.259 1.00 26.64
ATOM 1459 OE1 GLN A 191 0 29.745 7.761 12.427 1.00 28.86
25 ATOM 1460 NE2 GLN A 191 0 27.909 7.080 13.563 1.00 26.40
ATOM 1461 N GLY A 192 0 30.224 12.119 15.290 1.00 21.84
ATOM 1462 CA GLY A 192 0 31.418 12.469 15.996 1.00 22.91
ATOM 1463 C GLY A 192 0 31.564 13.910 16.446 1.00 23.87
ATOM 1464 O GLY A 192 0 32.394 14.174 17.322 1.00 25.80
30 ATOM 1465 N LYS A 193 0 30.839 14.867 15.922 1.00 23.54
ATOM 1466 CA LYS A 193 0 30.899 16.259 16.362 1.00 22.84
ATOM 1467 C LYS A 193 0 29.840 16.584 17.404 1.00 21.67
ATOM 1468 O LYS A 193 0 28.826 15.882 17.538 1.00 20.99
ATOM 1469 CB LYS A 193 0 30.682 17.155 15.143 1.00 24.53
35 ATOM 1470 CG LYS A 193 0 31.900 17.149 14.217 1.00 27.82
ATOM 1471 CD LYS A 193 0 31.739 18.261 13.199 1.00 30.02
ATOM 1472 CE LYS A 193 0 33.060 19.001 12.990 1.00 31.93
ATOM 1473 NZ LYS A 193 0 33.392 18.906 11.540 1.00 33.14

ATOM 1474 N LYS A 194 O 30.067 17.626 18.169 1.00 19.25
ATOM 1475 CA LYS A 194 O 29.168 18.115 19.187 1.00 19.49
ATOM 1476 C LYS A 194 O 28.722 19.523 18.780 1.00 19.40
ATOM 1477 O LYS A 194 O 29.512 20.285 18.235 1.00 19.29
5 ATOM 1478 CB LYS A 194 O 29.771 18.115 20.576 1.00 21.88
ATOM 1479 CG LYS A 194 O 30.338 16.748 20.999 1.00 25.59
ATOM 1480 CD LYS A 194 O 31.054 16.902 22.331 1.00 29.48
ATOM 1481 CE LYS A 194 O 31.455 15.582 22.970 1.00 33.58
ATOM 1482 NZ LYS A 194 O 30.363 15.049 23.868 1.00 35.93
10 ATOM 1483 N TYR A 195 O 27.418 19.818 18.910 1.00 16.92
ATOM 1484 CA TYR A 195 O 26.858 21.068 18.431 1.00 15.60
ATOM 1485 C TYR A 195 O 26.143 21.838 19.530 1.00 14.20
ATOM 1486 O TYR A 195 O 25.394 21.232 20.295 1.00 13.75
ATOM 1487 CB TYR A 195 O 25.814 20.880 17.300 1.00 16.13
15 ATOM 1488 CG TYR A 195 O 26.424 20.225 16.066 1.00 15.41
ATOM 1489 CD1 TYR A 195 O 26.663 18.851 16.091 1.00 15.91
ATOM 1490 CD2 TYR A 195 O 26.786 20.942 14.945 1.00 14.73
ATOM 1491 CE1 TYR A 195 O 27.244 18.204 15.010 1.00 16.55
ATOM 1492 CE2 TYR A 195 O 27.331 20.312 13.839 1.00 15.60
20 ATOM 1493 CZ TYR A 195 O 27.570 18.947 13.888 1.00 16.18
ATOM 1494 OH TYR A 195 O 28.144 18.287 12.831 1.00 15.64
ATOM 1495 N ARG A 196 O 26.366 23.136 19.561 1.00 12.74
ATOM 1496 CA ARG A 196 O 25.619 23.980 20.482 1.00 13.63
ATOM 1497 C ARG A 196 O 24.343 24.369 19.711 1.00 13.86
25 ATOM 1498 O ARG A 196 O 24.343 25.218 18.802 1.00 13.81
ATOM 1499 CB ARG A 196 O 26.379 25.187 20.991 1.00 13.96
ATOM 1500 CG ARG A 196 O 25.520 26.162 21.796 1.00 14.22
ATOM 1501 CD ARG A 196 O 26.337 27.238 22.438 1.00 15.27
ATOM 1502 NE ARG A 196 O 25.649 28.138 23.319 1.00 17.38
30 ATOM 1503 CZ ARG A 196 O 26.203 29.034 24.140 1.00 18.86
ATOM 1504 NH1 ARG A 196 O 27.540 29.141 24.217 1.00 16.30
ATOM 1505 NH2 ARG A 196 O 25.377 29.788 24.869 1.00 16.73
ATOM 1506 N MET A 197 O 23.266 23.624 20.002 1.00 13.86
ATOM 1507 CA MET A 197 O 21.980 23.932 19.340 1.00 12.98
35 ATOM 1508 C MET A 197 O 21.293 25.055 20.127 1.00 12.50
ATOM 1509 O MET A 197 O 21.285 24.997 21.359 1.00 13.93
ATOM 1510 CB MET A 197 O 21.118 22.693 19.266 1.00 12.50
ATOM 1511 CG MET A 197 O 21.762 21.567 18.447 1.00 13.94

ATOM 1512 SD MET A 197 0 21.860 22.033 16.735 1.00 16.62
ATOM 1513 CE MET A 197 0 22.157 20.467 15.927 1.00 16.37
ATOM 1514 N ARG A 198 0 20.768 26.064 19.450 1.00 11.00
ATOM 1515 CA ARG A 198 0 20.131 27.191 20.137 1.00 11.83
5 ATOM 1516 C ARG A 198 0 18.624 27.130 19.868 1.00 12.36
ATOM 1517 O ARG A 198 0 18.145 27.304 18.731 1.00 10.03
ATOM 1518 CB ARG A 198 0 20.804 28.460 19.629 1.00 13.98
ATOM 1519 CG ARG A 198 0 22.282 28.567 20.065 1.00 16.25
ATOM 1520 CD ARG A 198 0 22.932 29.863 19.626 1.00 16.68
10 ATOM 1521 NE ARG A 198 0 24.350 29.957 20.042 1.00 16.91
ATOM 1522 CZ ARG A 198 0 24.812 30.691 21.055 1.00 15.76
ATOM 1523 NH1 ARG A 198 0 24.031 31.456 21.820 1.00 13.44
ATOM 1524 NH2 ARG A 198 0 26.123 30.721 21.316 1.00 15.41
ATOM 1525 N LEU A 199 0 17.871 26.807 20.908 1.00 10.44
15 ATOM 1526 CA LEU A 199 0 16.426 26.568 20.708 1.00 10.69
ATOM 1527 C LEU A 199 0 15.598 27.772 21.169 1.00 10.07
ATOM 1528 O LEU A 199 0 15.682 28.216 22.317 1.00 10.07
ATOM 1529 CB LEU A 199 0 16.003 25.317 21.491 1.00 8.67
ATOM 1530 CG LEU A 199 0 14.499 24.942 21.391 1.00 10.33
20 ATOM 1531 CD1 LEU A 199 0 14.193 24.333 20.023 1.00 8.13
ATOM 1532 CD2 LEU A 199 0 14.170 23.907 22.485 1.00 9.10
ATOM 1533 N ILE A 200 0 14.857 28.370 20.242 1.00 10.46
ATOM 1534 CA ILE A 200 0 14.104 29.572 20.585 1.00 11.72
ATOM 1535 C ILE A 200 0 12.627 29.428 20.310 1.00 13.84
25 ATOM 1536 O ILE A 200 0 12.254 29.059 19.192 1.00 13.22
ATOM 1537 CB ILE A 200 0 14.628 30.755 19.735 1.00 12.89
ATOM 1538 CG1 ILE A 200 0 16.165 30.899 19.824 1.00 12.38
ATOM 1539 CG2 ILE A 200 0 13.998 32.091 20.065 1.00 13.13
ATOM 1540 CD1 ILE A 200 0 16.811 31.634 18.671 1.00 12.54
30 ATOM 1541 N SER A 201 0 11.829 29.825 21.312 1.00 14.64
ATOM 1542 CA SER A 201 0 10.379 29.849 21.023 1.00 13.89
ATOM 1543 C SER A 201 0 10.018 31.280 20.608 1.00 11.10
ATOM 1544 O SER A 201 0 10.250 32.261 21.320 1.00 8.85
ATOM 1545 CB SER A 201 0 9.539 29.367 22.202 1.00 13.01
35 ATOM 1546 OG SER A 201 0 8.313 30.047 22.207 1.00 12.19
ATOM 1547 N LEU A 202 0 9.428 31.376 19.438 1.00 9.64
ATOM 1548 CA LEU A 202 0 8.959 32.637 18.881 1.00 9.06
ATOM 1549 C LEU A 202 0 7.415 32.740 19.046 1.00 10.40

	ATOM	1550	O	LEU A 202	0	6.802	33.528	18.351	1.00	9.36
	ATOM	1551	CB	LEU A 202	0	9.239	32.618	17.379	1.00	9.09
	ATOM	1552	CG	LEU A 202	0	10.691	32.451	16.888	1.00	10.90
	ATOM	1553	CD1	LEU A 202	0	10.637	32.470	15.367	1.00	10.05
5	ATOM	1554	CD2	LEU A 202	0	11.617	33.559	17.414	1.00	8.56
	ATOM	1555	N	SER A 203	0	6.821	31.942	19.892	1.00	9.59
	ATOM	1556	CA	SER A 203	0	5.414	31.756	20.017	1.00	15.31
	ATOM	1557	C	SER A 203	0	4.624	32.960	20.544	1.00	16.67
	ATOM	1558	O	SER A 203	0	4.964	33.676	21.483	1.00	16.42
10	ATOM	1559	CB	SER A 203	0	5.130	30.505	20.867	1.00	15.21
	ATOM	1560	OG	SER A 203	0	3.742	30.240	21.004	1.00	17.14
	ATOM	1561	N	CYS A 204	0	3.428	33.051	19.984	1.00	17.18
	ATOM	1562	CA	CYS A 204	0	2.442	34.018	20.470	1.00	18.43
	ATOM	1563	C	CYS A 204	0	1.599	33.316	21.522	1.00	17.02
15	ATOM	1564	O	CYS A 204	0	0.867	34.039	22.200	1.00	17.27
	ATOM	1565	CB	CYS A 204	0	1.524	34.508	19.334	1.00	18.60
	ATOM	1566	SG	CYS A 204	0	2.135	36.038	18.612	1.00	20.23
	ATOM	1567	N	ASP A 205	0	1.687	31.989	21.665	1.00	16.38
	ATOM	1568	CA	ASP A 205	0	0.776	31.392	22.683	1.00	12.26
20	ATOM	1569	C	ASP A 205	0	1.123	30.002	23.087	1.00	11.34
	ATOM	1570	O	ASP A 205	0	1.432	29.687	24.255	1.00	11.40
	ATOM	1571	CB	ASP A 205	0	-0.622	31.516	22.076	1.00	14.87
	ATOM	1572	CG	ASP A 205	0	-1.729	30.881	22.892	1.00	16.61
	ATOM	1573	OD1	ASP A 205	0	-2.884	30.999	22.433	1.00	18.48
25	ATOM	1574	OD2	ASP A 205	0	-1.534	30.263	23.966	1.00	17.48
	ATOM	1575	N	PRO A 206	0	1.036	29.030	22.205	1.00	11.79
	ATOM	1576	CA	PRO A 206	0	1.313	27.639	22.542	1.00	11.91
	ATOM	1577	C	PRO A 206	0	2.739	27.411	23.045	1.00	14.01
	ATOM	1578	O	PRO A 206	0	3.676	28.135	22.661	1.00	14.38
30	ATOM	1579	CB	PRO A 206	0	1.124	26.816	21.262	1.00	11.87
	ATOM	1580	CG	PRO A 206	0	1.112	27.893	20.191	1.00	12.83
	ATOM	1581	CD	PRO A 206	0	0.749	29.241	20.766	1.00	11.09
	ATOM	1582	N	ASN A 207	0	2.888	26.439	23.911	1.00	13.06
	ATOM	1583	CA	ASN A 207	0	4.128	25.919	24.429	1.00	15.01
35	ATOM	1584	C	ASN A 207	0	4.332	24.591	23.677	1.00	15.84
	ATOM	1585	O	ASN A 207	0	3.376	24.095	23.038	1.00	16.22
	ATOM	1586	CB	ASN A 207	0	4.144	25.682	25.933	1.00	15.12
	ATOM	1587	CG	ASN A 207	0	3.054	24.708	26.395	1.00	19.36

	ATOM	1588	OD1	ASN	A 207	0	2.062	25.161	27.014	1.00	19.36
	ATOM	1589	ND2	ASN	A 207	0	3.174	23.408	26.203	1.00	16.49
	ATOM	1590	N	TRP	A 208	0	5.557	24.077	23.634	1.00	14.46
	ATOM	1591	CA	TRP	A 208	0	5.827	22.865	22.892	1.00	12.04
5	ATOM	1592	C	TRP	A 208	0	6.638	21.921	23.783	1.00	13.85
	ATOM	1593	O	TRP	A 208	0	7.482	22.385	24.558	1.00	13.02
	ATOM	1594	CB	TRP	A 208	0	6.654	23.136	21.628	1.00	11.91
	ATOM	1595	CG	TRP	A 208	0	5.951	23.769	20.465	1.00	11.27
	ATOM	1596	CD1	TRP	A 208	0	5.149	23.164	19.561	1.00	10.33
10	ATOM	1597	CD2	TRP	A 208	0	5.988	25.158	20.092	1.00	10.29
	ATOM	1598	NE1	TRP	A 208	0	4.698	24.078	18.625	1.00	10.91
	ATOM	1599	CE2	TRP	A 208	0	5.201	25.313	18.954	1.00	9.64
	ATOM	1600	CE3	TRP	A 208	0	6.634	26.294	20.625	1.00	10.25
	ATOM	1601	CZ2	TRP	A 208	0	5.011	26.553	18.344	1.00	8.53
15	ATOM	1602	CZ3	TRP	A 208	0	6.494	27.514	20.019	1.00	10.02
	ATOM	1603	CH2	TRP	A 208	0	5.668	27.633	18.881	1.00	11.79
	ATOM	1604	N	GLN	A 209	0	6.420	20.620	23.580	1.00	13.82
	ATOM	1605	CA	GLN	A 209	0	7.240	19.588	24.192	1.00	13.83
	ATOM	1606	C	GLN	A 209	0	8.251	19.281	23.075	1.00	13.07
20	ATOM	1607	O	GLN	A 209	0	7.848	18.968	21.948	1.00	14.18
	ATOM	1608	CB	GLN	A 209	0	6.441	18.319	24.487	1.00	15.65
	ATOM	1609	CG	GLN	A 209	0	5.449	18.481	25.649	1.00	17.26
	ATOM	1610	CD	GLN	A 209	0	6.177	18.514	26.975	1.00	18.17
	ATOM	1611	OE1	GLN	A 209	0	7.414	18.471	27.002	1.00	20.00
25	ATOM	1612	NE2	GLN	A 209	0	5.462	18.570	28.085	1.00	16.89
	ATOM	1613	N	PHE	A 210	0	9.538	19.461	23.351	1.00	11.26
	ATOM	1614	CA	PHE	A 210	0	10.526	19.329	22.287	1.00	10.01
	ATOM	1615	C	PHE	A 210	0	11.457	18.153	22.585	1.00	9.18
	ATOM	1616	O	PHE	A 210	0	11.894	17.999	23.732	1.00	10.07
30	ATOM	1617	CB	PHE	A 210	0	11.370	20.629	22.292	1.00	10.86
	ATOM	1618	CG	PHE	A 210	0	12.489	20.581	21.292	1.00	9.63
	ATOM	1619	CD1	PHE	A 210	0	13.760	20.179	21.674	1.00	9.95
	ATOM	1620	CD2	PHE	A 210	0	12.251	20.922	19.984	1.00	8.54
	ATOM	1621	CE1	PHE	A 210	0	14.778	20.150	20.738	1.00	9.23
35	ATOM	1622	CE2	PHE	A 210	0	13.243	20.862	19.023	1.00	7.93
	ATOM	1623	CZ	PHE	A 210	0	14.520	20.491	19.426	1.00	8.71
	ATOM	1624	N	SER	A 211	0	11.741	17.384	21.545	1.00	8.62
	ATOM	1625	CA	SER	A 211	0	12.645	16.255	21.716	1.00	10.71

ATOM 1626 C SER A 211 O 13.142 15.844 20.347 1.00 11.36
ATOM 1627 O SER A 211 O 12.661 16.323 19.315 1.00 9.99
ATOM 1628 CB SER A 211 O 11.970 15.070 22.427 1.00 10.56
ATOM 1629 OG SER A 211 O 10.899 14.731 21.513 1.00 12.92
5 ATOM 1630 N ILE A 212 O 14.268 15.122 20.390 1.00 13.67
ATOM 1631 CA ILE A 212 O 14.883 14.680 19.131 1.00 14.79
ATOM 1632 C ILE A 212 O 15.013 13.166 19.220 1.00 15.44
ATOM 1633 O ILE A 212 O 15.624 12.689 20.177 1.00 15.98
ATOM 1634 CB ILE A 212 O 16.255 15.341 18.887 1.00 17.04
10 ATOM 1635 CG1 ILE A 212 O 16.082 16.859 18.756 1.00 15.64
ATOM 1636 CG2 ILE A 212 O 16.935 14.722 17.648 1.00 15.24
ATOM 1637 CD1 ILE A 212 O 17.352 17.648 18.553 1.00 16.57
ATOM 1638 N ASP A 213 O 14.453 12.418 18.281 1.00 15.53
ATOM 1639 CA ASP A 213 O 14.549 10.952 18.401 1.00 16.50
15 ATOM 1640 C ASP A 213 O 16.004 10.469 18.541 1.00 16.69
ATOM 1641 O ASP A 213 O 16.948 10.902 17.851 1.00 14.36
ATOM 1642 CB ASP A 213 O 13.884 10.359 17.173 1.00 17.15
ATOM 1643 CG ASP A 213 O 12.369 10.467 17.144 1.00 18.12
ATOM 1644 OD1 ASP A 213 O 11.751 10.995 18.092 1.00 16.90
20 ATOM 1645 OD2 ASP A 213 O 11.801 9.990 16.129 1.00 17.35
ATOM 1646 N GLY A 214 O 16.198 9.559 19.477 1.00 15.76
ATOM 1647 CA GLY A 214 O 17.457 8.900 19.747 1.00 17.22
ATOM 1648 C GLY A 214 O 18.548 9.757 20.368 1.00 18.54
ATOM 1649 O GLY A 214 O 19.680 9.277 20.404 1.00 18.20
25 ATOM 1650 N HIS A 215 O 18.341 11.024 20.738 1.00 18.17
ATOM 1651 CA HIS A 215 O 19.422 11.880 21.229 1.00 17.59
ATOM 1652 C HIS A 215 O 19.096 12.505 22.577 1.00 17.92
ATOM 1653 O HIS A 215 O 17.917 12.696 22.898 1.00 20.45
ATOM 1654 CB HIS A 215 O 19.705 13.008 20.221 1.00 15.73
30 ATOM 1655 CG HIS A 215 O 20.309 12.543 18.936 1.00 16.90
ATOM 1656 ND1 HIS A 215 O 19.589 11.864 17.963 1.00 17.35
ATOM 1657 CD2 HIS A 215 O 21.574 12.658 18.444 1.00 16.15
ATOM 1658 CE1 HIS A 215 O 20.376 11.576 16.933 1.00 17.63
ATOM 1659 NE2 HIS A 215 O 21.599 12.046 17.216 1.00 17.73
35 ATOM 1660 N GLU A 216 O 20.104 12.815 23.382 1.00 17.22
ATOM 1661 CA GLU A 216 O 19.876 13.479 24.665 1.00 15.86
ATOM 1662 C GLU A 216 O 20.070 14.976 24.456 1.00 15.61
ATOM 1663 O GLU A 216 O 20.684 15.386 23.453 1.00 14.96

ATOM 1664 CB GLU A 216 O 20.817 12.901 25.694 1.00 15.38
ATOM 1665 CG GLU A 216 O 20.440 11.520 26.166 1.00 16.53
ATOM 1666 CD GLU A 216 O 21.242 11.058 27.357 1.00 17.23
ATOM 1667 OE1 GLU A 216 O 22.378 10.619 27.129 1.00 20.31
5 ATOM 1668 OE2 GLU A 216 O 20.813 11.119 28.519 1.00 16.06
ATOM 1669 N LEU A 217 O 19.623 15.792 25.394 1.00 14.64
ATOM 1670 CA LEU A 217 O 19.738 17.243 25.251 1.00 14.91
ATOM 1671 C LEU A 217 O 20.512 17.792 26.446 1.00 14.71
ATOM 1672 O LEU A 217 O 19.950 17.734 27.539 1.00 15.67
10 ATOM 1673 CB LEU A 217 O 18.362 17.931 25.229 1.00 14.75
ATOM 1674 CG LEU A 217 O 17.276 17.349 24.306 1.00 15.40
ATOM 1675 CD1 LEU A 217 O 15.939 18.075 24.505 1.00 15.08
ATOM 1676 CD2 LEU A 217 O 17.723 17.453 22.849 1.00 15.22
ATOM 1677 N THR A 218 O 21.732 18.278 26.229 1.00 13.65
15 ATOM 1678 CA THR A 218 O 22.507 18.714 27.402 1.00 13.26
ATOM 1679 C THR A 218 O 22.427 20.232 27.505 1.00 13.27
ATOM 1680 O THR A 218 O 23.142 20.955 26.805 1.00 12.91
ATOM 1681 CB THR A 218 O 23.955 18.216 27.304 1.00 12.08
ATOM 1682 OG1 THR A 218 O 23.935 16.782 27.331 1.00 15.48
20 ATOM 1683 CG2 THR A 218 O 24.767 18.721 28.470 1.00 11.46
ATOM 1684 N ILE A 219 O 21.522 20.649 28.385 1.00 13.30
ATOM 1685 CA ILE A 219 O 21.259 22.068 28.547 1.00 14.53
ATOM 1686 C ILE A 219 O 22.420 22.818 29.180 1.00 12.72
ATOM 1687 O ILE A 219 O 22.795 22.492 30.292 1.00 13.08
25 ATOM 1688 CB ILE A 219 O 19.930 22.268 29.323 1.00 14.74
ATOM 1689 CG1 ILE A 219 O 18.761 21.699 28.441 1.00 17.33
ATOM 1690 CG2 ILE A 219 O 19.666 23.717 29.656 1.00 13.40
ATOM 1691 CD1 ILE A 219 O 17.597 21.481 29.412 1.00 19.42
ATOM 1692 N ILE A 220 O 22.898 23.869 28.510 1.00 12.55
30 ATOM 1693 CA ILE A 220 O 23.994 24.696 29.019 1.00 13.25
ATOM 1694 C ILE A 220 O 23.686 26.193 29.085 1.00 15.11
ATOM 1695 O ILE A 220 O 24.477 27.001 29.618 1.00 14.73
ATOM 1696 CB ILE A 220 O 25.239 24.507 28.125 1.00 11.80
ATOM 1697 CG1 ILE A 220 O 24.954 24.871 26.671 1.00 10.93
35 ATOM 1698 CG2 ILE A 220 O 25.770 23.072 28.291 1.00 9.59
ATOM 1699 CD1 ILE A 220 O 26.249 25.231 25.928 1.00 12.07
ATOM 1700 N GLU A 221 O 22.490 26.573 28.597 1.00 13.30
ATOM 1701 CA GLU A 221 O 22.048 27.951 28.624 1.00 12.96

	ATOM	1702	C	GLU A 221	0	20.522	28.066	28.727	1.00	13.77
	ATOM	1703	O	GLU A 221	0	19.799	27.301	28.068	1.00	14.06
	ATOM	1704	CB	GLU A 221	0	22.436	28.666	27.318	1.00	12.73
	ATOM	1705	CG	GLU A 221	0	22.280	30.178	27.325	1.00	12.94
5	ATOM	1706	CD	GLU A 221	0	22.018	30.783	25.969	1.00	13.84
	ATOM	1707	OE1	GLU A 221	0	22.345	30.269	24.887	1.00	12.66
	ATOM	1708	OE2	GLU A 221	0	21.386	31.862	25.936	1.00	14.80
	ATOM	1709	N	VAL A 222	0	20.062	29.091	29.434	1.00	13.89
	ATOM	1710	CA	VAL A 222	0	18.632	29.350	29.534	1.00	14.13
10	ATOM	1711	C	VAL A 222	0	18.409	30.853	29.493	1.00	13.87
	ATOM	1712	O	VAL A 222	0	18.900	31.657	30.300	1.00	11.55
	ATOM	1713	CB	VAL A 222	0	18.003	28.649	30.737	1.00	16.86
	ATOM	1714	CG1	VAL A 222	0	18.730	28.941	32.017	1.00	19.16
	ATOM	1715	CG2	VAL A 222	0	16.575	29.120	31.033	1.00	18.45
15	ATOM	1716	N	ASP A 223	0	17.631	31.267	28.481	1.00	11.69
	ATOM	1717	CA	ASP A 223	0	17.245	32.673	28.386	1.00	13.60
	ATOM	1718	C	ASP A 223	0	18.472	33.598	28.548	1.00	14.44
	ATOM	1719	O	ASP A 223	0	18.423	34.552	29.336	1.00	12.75
	ATOM	1720	CB	ASP A 223	0	16.161	33.033	29.417	1.00	12.59
20	ATOM	1721	CG	ASP A 223	0	14.845	32.279	29.364	1.00	14.64
	ATOM	1722	OD1	ASP A 223	0	14.697	31.397	28.493	1.00	13.34
	ATOM	1723	OD2	ASP A 223	0	13.858	32.463	30.156	1.00	13.85
	ATOM	1724	N	GLY A 224	0	19.544	33.372	27.767	1.00	13.49
	ATOM	1725	CA	GLY A 224	0	20.728	34.213	27.770	1.00	12.85
25	ATOM	1726	C	GLY A 224	0	21.562	34.112	29.049	1.00	13.00
	ATOM	1727	O	GLY A 224	0	22.326	35.040	29.317	1.00	13.97
	ATOM	1728	N	GLU A 225	0	21.370	33.105	29.875	1.00	11.78
	ATOM	1729	CA	GLU A 225	0	22.068	32.888	31.114	1.00	14.97
	ATOM	1730	C	GLU A 225	0	22.609	31.447	31.106	1.00	16.73
30	ATOM	1731	O	GLU A 225	0	21.858	30.498	30.849	1.00	15.88
	ATOM	1732	CB	GLU A 225	0	21.174	33.062	32.358	1.00	16.54
	ATOM	1733	CG	GLU A 225	0	20.509	34.424	32.534	1.00	16.30
	ATOM	1734	CD	GLU A 225	0	21.492	35.546	32.823	1.00	17.57
	ATOM	1735	OE1	GLU A 225	0	22.450	35.254	33.561	1.00	18.76
35	ATOM	1736	OE2	GLU A 225	0	21.360	36.711	32.360	1.00	17.77
	ATOM	1737	N	LEU A 226	0	23.922	31.285	31.324	1.00	16.90
	ATOM	1738	CA	LEU A 226	0	24.526	29.955	31.318	1.00	15.50
	ATOM	1739	C	LEU A 226	0	24.183	29.127	32.540	1.00	15.04

ATOM 1740 O LEU A 226 0 24.002 29.648 33.652 1.00 15.17
ATOM 1741 CB LEU A 226 0 26.062 30.008 31.216 1.00 15.36
ATOM 1742 CG LEU A 226 0 26.567 30.741 29.958 1.00 17.95
ATOM 1743 CD1 LEU A 226 0 28.076 30.876 29.979 1.00 18.77
5 ATOM 1744 CD2 LEU A 226 0 26.111 30.029 28.687 1.00 17.36
ATOM 1745 N THR A 227 0 24.119 27.799 32.332 1.00 13.62
ATOM 1746 CA THR A 227 0 23.848 26.930 33.479 1.00 13.72
ATOM 1747 C THR A 227 0 24.936 25.851 33.528 1.00 14.30
ATOM 1748 O THR A 227 0 25.732 25.629 32.592 1.00 14.28
10 ATOM 1749 CB THR A 227 0 22.478 26.217 33.352 1.00 14.35
ATOM 1750 OG1 THR A 227 0 22.506 25.385 32.178 1.00 13.68
ATOM 1751 CG2 THR A 227 0 21.284 27.161 33.180 1.00 12.29
ATOM 1752 N GLU A 228 0 24.960 25.136 34.625 1.00 14.73
ATOM 1753 CA GLU A 228 0 25.765 23.907 34.714 1.00 17.32
15 ATOM 1754 C GLU A 228 0 25.110 22.971 33.680 1.00 17.30
ATOM 1755 O GLU A 228 0 23.917 23.035 33.472 1.00 16.97
ATOM 1756 CB GLU A 228 0 25.617 23.315 36.114 1.00 16.58
ATOM 1757 CG GLU A 228 0 26.493 23.979 37.186 1.00 18.10
ATOM 1758 CD GLU A 228 0 26.236 23.458 38.575 1.00 20.92
20 ATOM 1759 OE1 GLU A 228 0 25.469 22.470 38.755 1.00 23.38
ATOM 1760 OE2 GLU A 228 0 26.769 23.997 39.564 1.00 21.26
ATOM 1761 N PRO A 229 0 25.867 22.158 32.984 1.00 16.91
ATOM 1762 CA PRO A 229 0 25.369 21.207 31.992 1.00 16.37
ATOM 1763 C PRO A 229 0 24.351 20.275 32.599 1.00 16.24
25 ATOM 1764 O PRO A 229 0 24.624 19.652 33.619 1.00 15.76
ATOM 1765 CB PRO A 229 0 26.612 20.469 31.419 1.00 15.97
ATOM 1766 CG PRO A 229 0 27.701 21.509 31.741 1.00 15.92
ATOM 1767 CD PRO A 229 0 27.337 22.141 33.083 1.00 14.86
ATOM 1768 N HIS A 230 0 23.140 20.164 32.038 1.00 15.58
30 ATOM 1769 CA HIS A 230 0 22.090 19.325 32.618 1.00 15.01
ATOM 1770 C HIS A 230 0 21.354 18.610 31.488 1.00 13.55
ATOM 1771 O HIS A 230 0 20.756 19.192 30.590 1.00 13.47
ATOM 1772 CB HIS A 230 0 21.172 20.164 33.510 1.00 15.89
ATOM 1773 CG HIS A 230 0 20.045 19.341 34.064 1.00 18.32
35 ATOM 1774 ND1 HIS A 230 0 20.252 18.347 35.004 1.00 18.14
ATOM 1775 CD2 HIS A 230 0 18.713 19.328 33.791 1.00 17.75
ATOM 1776 CE1 HIS A 230 0 19.121 17.768 35.310 1.00 16.33
ATOM 1777 NE2 HIS A 230 0 18.173 18.344 34.609 1.00 17.85

ATOM 1778 N THR A 231 O 21.496 17.304 31.458 1.00 12.94
ATOM 1779 CA THR A 231 O 20.995 16.474 30.346 1.00 14.15
ATOM 1780 C THR A 231 O 19.620 15.890 30.547 1.00 13.41
ATOM 1781 O THR A 231 O 19.293 15.401 31.616 1.00 14.89
5 ATOM 1782 CB THR A 231 O 22.040 15.364 30.060 1.00 13.73
ATOM 1783 OG1 THR A 231 O 23.314 16.023 29.852 1.00 14.77
ATOM 1784 CG2 THR A 231 O 21.655 14.600 28.818 1.00 13.06
ATOM 1785 N VAL A 232 O 18.776 15.954 29.549 1.00 12.86
ATOM 1786 CA VAL A 232 O 17.374 15.505 29.665 1.00 13.44
10 ATOM 1787 C VAL A 232 O 16.999 14.966 28.319 1.00 14.96
ATOM 1788 O VAL A 232 O 17.790 15.258 27.390 1.00 14.12
ATOM 1789 CB VAL A 232 O 16.771 16.910 30.000 1.00 17.41
ATOM 1790 CG1 VAL A 232 O 16.075 17.587 28.856 1.00 14.66
ATOM 1791 CG2 VAL A 232 O 16.158 16.935 31.371 1.00 15.66
15 ATOM 1792 N ASP A 233 O 15.874 14.277 28.153 1.00 14.01
ATOM 1793 CA ASP A 233 O 15.405 13.803 26.874 1.00 14.73
ATOM 1794 C ASP A 233 O 14.353 14.718 26.245 1.00 14.74
ATOM 1795 O ASP A 233 O 14.187 14.731 25.027 1.00 13.41
ATOM 1796 CB ASP A 233 O 14.640 12.465 27.046 1.00 16.54
20 ATOM 1797 CG ASP A 233 O 15.637 11.417 27.536 1.00 19.27
ATOM 1798 OD1 ASP A 233 O 16.543 11.145 26.732 1.00 20.98
ATOM 1799 OD2 ASP A 233 O 15.536 10.945 28.667 1.00 19.27
ATOM 1800 N ARG A 234 O 13.595 15.386 27.122 1.00 13.79
ATOM 1801 CA ARG A 234 O 12.514 16.199 26.598 1.00 16.36
25 ATOM 1802 C ARG A 234 O 12.258 17.426 27.472 1.00 15.17
ATOM 1803 O ARG A 234 O 12.418 17.390 28.686 1.00 13.96
ATOM 1804 CB ARG A 234 O 11.265 15.330 26.482 1.00 19.23
ATOM 1805 CG ARG A 234 O 10.104 16.036 25.788 1.00 22.25
ATOM 1806 CD ARG A 234 O 8.981 15.023 25.506 1.00 24.68
30 ATOM 1807 NE ARG A 234 O 8.157 14.983 26.705 1.00 28.27
ATOM 1808 CZ ARG A 234 O 6.845 14.828 26.719 1.00 28.66
ATOM 1809 NH1 ARG A 234 O 6.291 14.833 27.909 1.00 30.08
ATOM 1810 NH2 ARG A 234 O 6.191 14.662 25.587 1.00 30.24
ATOM 1811 N LEU A 235 O 11.874 18.524 26.816 1.00 13.90
35 ATOM 1812 CA LEU A 235 O 11.619 19.742 27.607 1.00 13.15
ATOM 1813 C LEU A 235 O 10.390 20.430 27.041 1.00 11.49
ATOM 1814 O LEU A 235 O 10.025 20.304 25.873 1.00 11.08
ATOM 1815 CB LEU A 235 O 12.825 20.630 27.695 1.00 14.39

	ATOM	1816	CG	LEU A 235	0	13.459	21.645	26.801	1.00	17.19
	ATOM	1817	CD1	LEU A 235	0	14.795	21.218	26.197	1.00	16.98
	ATOM	1818	CD2	LEU A 235	0	12.586	22.219	25.685	1.00	18.24
	ATOM	1819	N	GLN A 236	0	9.769	21.152	27.949	1.00	12.74
5	ATOM	1820	CA	GLN A 236	0	8.576	21.944	27.616	1.00	13.45
	ATOM	1821	C	GLN A 236	0	9.005	23.390	27.459	1.00	12.21
	ATOM	1822	O	GLN A 236	0	9.606	23.939	28.406	1.00	13.90
	ATOM	1823	CB	GLN A 236	0	7.525	21.770	28.741	1.00	12.06
	ATOM	1824	CG	GLN A 236	0	6.197	22.276	28.238	1.00	14.12
10	ATOM	1825	CD	GLN A 236	0	5.025	22.108	29.205	1.00	13.35
	ATOM	1826	OE1	GLN A 236	0	3.893	22.215	28.721	1.00	15.61
	ATOM	1827	NE2	GLN A 236	0	5.226	21.912	30.463	1.00	12.00
	ATOM	1828	N	ILE A 237	0	8.748	24.011	26.311	1.00	12.17
	ATOM	1829	CA	ILE A 237	0	9.213	25.390	26.156	1.00	12.41
15	ATOM	1830	C	ILE A 237	0	8.061	26.376	25.953	1.00	13.14
	ATOM	1831	O	ILE A 237	0	7.283	26.310	24.990	1.00	13.64
	ATOM	1832	CB	ILE A 237	0	10.255	25.437	25.022	1.00	11.03
	ATOM	1833	CG1	ILE A 237	0	10.947	26.793	24.960	1.00	11.84
	ATOM	1834	CG2	ILE A 237	0	9.615	25.086	23.662	1.00	10.02
20	ATOM	1835	CD1	ILE A 237	0	12.041	26.953	23.902	1.00	11.23
	ATOM	1836	N	PHE A 238	0	8.037	27.414	26.765	1.00	12.83
	ATOM	1837	CA	PHE A 238	0	6.979	28.431	26.714	1.00	13.23
	ATOM	1838	C	PHE A 238	0	7.382	29.683	25.957	1.00	13.99
	ATOM	1839	O	PHE A 238	0	8.530	29.848	25.545	1.00	13.87
25	ATOM	1840	CB	PHE A 238	0	6.592	28.848	28.145	1.00	12.72
	ATOM	1841	CG	PHE A 238	0	6.176	27.691	28.993	1.00	14.51
	ATOM	1842	CD1	PHE A 238	0	7.098	26.957	29.710	1.00	14.84
	ATOM	1843	CD2	PHE A 238	0	4.836	27.314	29.078	1.00	15.50
	ATOM	1844	CE1	PHE A 238	0	6.748	25.882	30.497	1.00	13.87
30	ATOM	1845	CE2	PHE A 238	0	4.468	26.236	29.862	1.00	14.62
	ATOM	1846	CZ	PHE A 238	0	5.423	25.528	30.568	1.00	15.15
	ATOM	1847	N	THR A 239	0	6.388	30.494	25.604	1.00	14.16
	ATOM	1848	CA	THR A 239	0	6.543	31.678	24.806	1.00	13.44
	ATOM	1849	C	THR A 239	0	7.832	32.453	25.106	1.00	11.74
35	ATOM	1850	O	THR A 239	0	8.012	32.950	26.218	1.00	10.47
	ATOM	1851	CB	THR A 239	0	5.381	32.695	24.978	1.00	15.55
	ATOM	1852	OG1	THR A 239	0	5.258	33.008	26.359	1.00	17.88
	ATOM	1853	CG2	THR A 239	0	4.055	32.131	24.478	1.00	16.75

ATOM 1854 N GLY A 240 O 8.672 32.593 24.078 1.00 7.94
ATOM 1855 CA GLY A 240 O 9.877 33.348 24.193 1.00 10.08
ATOM 1856 C GLY A 240 O 11.039 32.865 25.041 1.00 11.34
ATOM 1857 O GLY A 240 O 11.977 33.650 25.216 1.00 11.02
5 ATOM 1858 N GLN A 241 O 10.990 31.646 25.592 1.00 9.73
ATOM 1859 CA GLN A 241 O 12.067 31.090 26.364 1.00 9.59
ATOM 1860 C GLN A 241 O 13.114 30.587 25.342 1.00 10.56
ATOM 1861 O GLN A 241 O 12.823 30.467 24.126 1.00 8.44
ATOM 1862 CB GLN A 241 O 11.604 29.965 27.285 1.00 10.57
10 ATOM 1863 CG GLN A 241 O 10.820 30.363 28.523 1.00 10.54
ATOM 1864 CD GLN A 241 O 10.341 29.190 29.341 1.00 12.22
ATOM 1865 OE1 GLN A 241 O 10.118 28.077 28.815 1.00 13.21
ATOM 1866 NE2 GLN A 241 O 10.220 29.466 30.639 1.00 11.74
ATOM 1867 N ARG A 242 O 14.372 30.492 25.774 1.00 9.00
15 ATOM 1868 CA ARG A 242 O 15.388 29.992 24.834 1.00 11.01
ATOM 1869 C ARG A 242 O 16.210 28.966 25.609 1.00 11.30
ATOM 1870 O ARG A 242 O 16.292 29.133 26.816 1.00 9.51
ATOM 1871 CB ARG A 242 O 16.324 31.043 24.265 1.00 12.77
ATOM 1872 CG ARG A 242 O 15.694 32.128 23.364 1.00 12.52
20 ATOM 1873 CD ARG A 242 O 15.066 33.249 24.138 1.00 10.81
ATOM 1874 NE ARG A 242 O 15.957 34.126 24.892 1.00 10.80
ATOM 1875 CZ ARG A 242 O 15.630 34.761 26.002 1.00 11.36
ATOM 1876 NH1 ARG A 242 O 16.486 35.548 26.648 1.00 7.98
ATOM 1877 NH2 ARG A 242 O 14.365 34.589 26.489 1.00 12.78
25 ATOM 1878 N TYR A 243 O 16.717 27.934 24.942 1.00 11.61
ATOM 1879 CA TYR A 243 O 17.631 27.009 25.610 1.00 12.54
ATOM 1880 C TYR A 243 O 18.819 26.762 24.650 1.00 14.46
ATOM 1881 O TYR A 243 O 18.568 26.656 23.435 1.00 16.11
ATOM 1882 CB TYR A 243 O 17.015 25.638 25.934 1.00 11.09
30 ATOM 1883 CG TYR A 243 O 16.007 25.667 27.054 1.00 12.11
ATOM 1884 CD1 TYR A 243 O 14.641 25.825 26.843 1.00 12.88
ATOM 1885 CD2 TYR A 243 O 16.440 25.575 28.371 1.00 12.11
ATOM 1886 CE1 TYR A 243 O 13.748 25.869 27.915 1.00 12.71
ATOM 1887 CE2 TYR A 243 O 15.560 25.582 29.436 1.00 12.50
35 ATOM 1888 CZ TYR A 243 O 14.205 25.738 29.188 1.00 12.29
ATOM 1889 OH TYR A 243 O 13.379 25.789 30.286 1.00 13.65
ATOM 1890 N SER A 244 O 20.059 26.734 25.144 1.00 12.78
ATOM 1891 CA SER A 244 O 21.117 26.212 24.268 1.00 13.22

ATOM 1892 C SER A 244 0 21.333 24.779 24.814 1.00 11.06
ATOM 1893 O SER A 244 0 21.377 24.604 26.018 1.00 11.27
ATOM 1894 CB SER A 244 0 22.485 26.907 24.308 1.00 14.46
ATOM 1895 OG SER A 244 0 22.551 28.029 23.463 1.00 13.59
5 ATOM 1896 N PHE A 245 0 21.484 23.780 23.983 1.00 11.89
ATOM 1897 CA PHE A 245 0 21.772 22.437 24.452 1.00 13.14
ATOM 1898 C PHE A 245 0 22.867 21.857 23.546 1.00 12.32
ATOM 1899 O PHE A 245 0 22.890 22.128 22.354 1.00 11.11
ATOM 1900 CB PHE A 245 0 20.554 21.495 24.526 1.00 11.40
10 ATOM 1901 CG PHE A 245 0 19.915 21.236 23.195 1.00 11.98
ATOM 1902 CD1 PHE A 245 0 18.815 21.993 22.813 1.00 13.38
ATOM 1903 CD2 PHE A 245 0 20.349 20.236 22.351 1.00 11.45
ATOM 1904 CE1 PHE A 245 0 18.216 21.773 21.588 1.00 12.84
ATOM 1905 CE2 PHE A 245 0 19.759 20.000 21.129 1.00 11.48
15 ATOM 1906 CZ PHE A 245 0 18.705 20.796 20.743 1.00 12.65
ATOM 1907 N VAL A 246 0 23.742 21.073 24.169 1.00 13.51
ATOM 1908 CA VAL A 246 0 24.775 20.427 23.341 1.00 13.37
ATOM 1909 C VAL A 246 0 24.096 19.177 22.783 1.00 12.47
ATOM 1910 O VAL A 246 0 23.505 18.425 23.540 1.00 11.41
20 ATOM 1911 CB VAL A 246 0 25.990 19.984 24.190 1.00 14.96
ATOM 1912 CG1 VAL A 246 0 26.995 19.186 23.364 1.00 13.75
ATOM 1913 CG2 VAL A 246 0 26.681 21.165 24.841 1.00 15.92
ATOM 1914 N LEU A 247 0 24.160 18.996 21.490 1.00 12.97
ATOM 1915 CA LEU A 247 0 23.766 17.833 20.785 1.00 14.32
25 ATOM 1916 C LEU A 247 0 25.071 17.077 20.395 1.00 14.22
ATOM 1917 O LEU A 247 0 25.954 17.529 19.664 1.00 12.45
ATOM 1918 CB LEU A 247 0 22.980 18.109 19.505 1.00 16.00
ATOM 1919 CG LEU A 247 0 22.514 16.786 18.835 1.00 16.80
ATOM 1920 CD1 LEU A 247 0 21.266 16.306 19.513 1.00 18.30
30 ATOM 1921 CD2 LEU A 247 0 22.207 16.988 17.373 1.00 18.70
ATOM 1922 N ASP A 248 0 25.144 15.886 20.926 1.00 13.56
ATOM 1923 CA ASP A 248 0 26.278 14.980 20.727 1.00 16.65
ATOM 1924 C ASP A 248 0 25.916 14.072 19.581 1.00 16.18
ATOM 1925 O ASP A 248 0 25.095 13.166 19.813 1.00 17.60
35 ATOM 1926 CB ASP A 248 0 26.536 14.229 22.036 1.00 17.83
ATOM 1927 CG ASP A 248 0 27.798 13.359 22.024 1.00 21.77
ATOM 1928 OD1 ASP A 248 0 28.231 12.967 23.140 1.00 24.11
ATOM 1929 OD2 ASP A 248 0 28.345 13.060 20.950 1.00 21.25

ATOM 1930 N ALA A 249 0 26.414 14.277 18.369 1.00 15.85
ATOM 1931 CA ALA A 249 0 25.982 13.416 17.255 1.00 17.99
ATOM 1932 C ALA A 249 0 26.698 12.049 17.306 1.00 20.21
ATOM 1933 O ALA A 249 0 27.569 11.766 16.485 1.00 19.11
5 ATOM 1934 CB ALA A 249 0 26.165 14.126 15.930 1.00 14.57
ATOM 1935 N ASN A 250 0 26.273 11.223 18.253 1.00 21.66
ATOM 1936 CA ASN A 250 0 26.861 9.961 18.581 1.00 25.53
ATOM 1937 C ASN A 250 0 26.061 8.721 18.202 1.00 27.30
ATOM 1938 O ASN A 250 0 26.344 7.645 18.756 1.00 29.42
10 ATOM 1939 CB ASN A 250 0 27.108 9.912 20.104 1.00 25.83
ATOM 1940 CG ASN A 250 0 25.888 9.968 20.978 1.00 28.76
ATOM 1941 OD1 ASN A 250 0 24.757 10.156 20.527 1.00 29.90
ATOM 1942 ND2 ASN A 250 0 26.042 9.826 22.306 1.00 29.52
ATOM 1943 N GLN A 251 0 25.089 8.841 17.302 1.00 26.74
15 ATOM 1944 CA GLN A 251 0 24.239 7.712 16.934 1.00 23.48
ATOM 1945 C GLN A 251 0 24.583 7.311 15.510 1.00 21.73
ATOM 1946 O GLN A 251 0 25.333 8.009 14.843 1.00 19.39
ATOM 1947 CB GLN A 251 0 22.757 8.104 17.022 1.00 24.79
ATOM 1948 CG GLN A 251 0 22.333 8.701 18.360 1.00 25.14
20 ATOM 1949 CD GLN A 251 0 22.430 7.693 19.480 1.00 26.76
ATOM 1950 OE1 GLN A 251 0 21.762 6.654 19.405 1.00 28.78
ATOM 1951 NE2 GLN A 251 0 23.202 7.986 20.514 1.00 26.02
ATOM 1952 N PRO A 252 0 24.058 6.177 15.076 1.00 20.53
ATOM 1953 CA PRO A 252 0 24.293 5.637 13.755 1.00 20.06
25 ATOM 1954 C PRO A 252 0 23.940 6.671 12.702 1.00 21.83
ATOM 1955 O PRO A 252 0 22.973 7.424 12.940 1.00 22.51
ATOM 1956 CB PRO A 252 0 23.417 4.367 13.647 1.00 19.98
ATOM 1957 CG PRO A 252 0 23.288 3.997 15.096 1.00 19.94
ATOM 1958 CD PRO A 252 0 23.223 5.289 15.902 1.00 19.68
30 ATOM 1959 N VAL A 253 0 24.663 6.728 11.584 1.00 20.85
ATOM 1960 CA VAL A 253 0 24.302 7.741 10.604 1.00 22.29
ATOM 1961 C VAL A 253 0 22.897 7.414 10.108 1.00 23.02
ATOM 1962 O VAL A 253 0 22.593 6.289 9.753 1.00 21.37
ATOM 1963 CB VAL A 253 0 25.298 8.065 9.494 1.00 23.22
35 ATOM 1964 CG1 VAL A 253 0 26.696 7.582 9.827 1.00 22.25
ATOM 1965 CG2 VAL A 253 0 24.859 7.680 8.101 1.00 22.26
ATOM 1966 N ASP A 254 0 22.012 8.422 10.159 1.00 24.32
ATOM 1967 CA ASP A 254 0 20.613 8.176 9.786 1.00 22.09

	ATOM	1968	C	ASP A 254	0	19.782	9.448	9.821	1.00	20.71
	ATOM	1969	O	ASP A 254	0	20.365	10.481	10.099	1.00	18.92
	ATOM	1970	CB	ASP A 254	0	20.048	7.211	10.830	1.00	23.39
	ATOM	1971	CG	ASP A 254	0	18.964	6.331	10.251	1.00	24.43
5	ATOM	1972	OD1	ASP A 254	0	18.355	6.663	9.239	1.00	23.21
	ATOM	1973	OD2	ASP A 254	0	18.736	5.244	10.816	1.00	28.26
	ATOM	1974	N	ASN A 255	0	18.485	9.338	9.496	1.00	18.97
	ATOM	1975	CA	ASN A 255	0	17.583	10.479	9.599	1.00	17.69
	ATOM	1976	C	ASN A 255	0	16.785	10.335	10.889	1.00	17.64
10	ATOM	1977	O	ASN A 255	0	16.390	9.204	11.249	1.00	17.75
	ATOM	1978	CB	ASN A 255	0	16.663	10.554	8.386	1.00	17.19
	ATOM	1979	CG	ASN A 255	0	17.467	10.882	7.143	1.00	17.33
	ATOM	1980	OD1	ASN A 255	0	17.891	12.023	6.932	1.00	18.05
	ATOM	1981	ND2	ASN A 255	0	17.649	9.913	6.263	1.00	15.98
15	ATOM	1982	N	TYR A 256	0	16.657	11.403	11.684	1.00	14.89
	ATOM	1983	CA	TYR A 256	0	15.983	11.364	12.961	1.00	12.56
	ATOM	1984	C	TYR A 256	0	14.966	12.520	12.991	1.00	15.02
	ATOM	1985	O	TYR A 256	0	15.208	13.637	12.509	1.00	14.49
	ATOM	1986	CB	TYR A 256	0	16.867	11.479	14.216	1.00	14.85
20	ATOM	1987	CG	TYR A 256	0	17.883	10.349	14.316	1.00	13.96
	ATOM	1988	CD1	TYR A 256	0	19.030	10.427	13.529	1.00	13.97
	ATOM	1989	CD2	TYR A 256	0	17.712	9.245	15.129	1.00	14.62
	ATOM	1990	CE1	TYR A 256	0	19.986	9.422	13.534	1.00	13.83
	ATOM	1991	CE2	TYR A 256	0	18.667	8.224	15.170	1.00	15.31
25	ATOM	1992	CZ	TYR A 256	0	19.795	8.336	14.346	1.00	15.90
	ATOM	1993	OH	TYR A 256	0	20.763	7.341	14.337	1.00	17.15
	ATOM	1994	N	TRP A 257	0	13.801	12.198	13.564	1.00	13.58
	ATOM	1995	CA	TRP A 257	0	12.742	13.196	13.657	1.00	14.21
	ATOM	1996	C	TRP A 257	0	13.041	14.198	14.769	1.00	12.04
30	ATOM	1997	O	TRP A 257	0	13.382	13.811	15.878	1.00	10.46
	ATOM	1998	CB	TRP A 257	0	11.363	12.592	13.988	1.00	12.49
	ATOM	1999	CG	TRP A 257	0	10.648	11.906	12.865	1.00	13.06
	ATOM	2000	CD1	TRP A 257	0	10.315	10.568	12.879	1.00	12.86
	ATOM	2001	CD2	TRP A 257	0	10.161	12.437	11.633	1.00	12.33
35	ATOM	2002	NE1	TRP A 257	0	9.640	10.267	11.720	1.00	13.75
	ATOM	2003	CE2	TRP A 257	0	9.530	11.388	10.940	1.00	13.78
	ATOM	2004	CE3	TRP A 257	0	10.173	13.691	11.035	1.00	14.13
	ATOM	2005	CZ2	TRP A 257	0	8.940	11.538	9.681	1.00	13.24

	ATOM	2006	CZ3	TRP	A 257	0	9.590	13.868	9.786	1.00	14.34
	ATOM	2007	CH2	TRP	A 257	0	8.963	12.789	9.127	1.00	13.64
	ATOM	2008	N	ILE	A 258	0	12.790	15.463	14.454	1.00	12.29
	ATOM	2009	CA	ILE	A 258	0	12.886	16.498	15.508	1.00	12.44
5	ATOM	2010	C	ILE	A 258	0	11.391	16.840	15.769	1.00	12.40
	ATOM	2011	O	ILE	A 258	0	10.629	17.039	14.812	1.00	12.43
	ATOM	2012	CB	ILE	A 258	0	13.617	17.777	15.048	1.00	13.32
	ATOM	2013	CG1	ILE	A 258	0	15.107	17.477	14.854	1.00	14.52
	ATOM	2014	CG2	ILE	A 258	0	13.365	18.888	16.052	1.00	12.32
10	ATOM	2015	CD1	ILE	A 258	0	15.839	18.474	13.994	1.00	14.35
	ATOM	2016	N	ARG	A 259	0	11.017	16.764	17.013	1.00	11.51
	ATOM	2017	CA	ARG	A 259	0	9.610	16.832	17.407	1.00	13.43
	ATOM	2018	C	ARG	A 259	0	9.254	18.019	18.274	1.00	12.74
	ATOM	2019	O	ARG	A 259	0	9.931	18.246	19.280	1.00	12.62
15	ATOM	2020	CB	ARG	A 259	0	9.326	15.567	18.253	1.00	12.43
	ATOM	2021	CG	ARG	A 259	0	9.308	14.290	17.414	1.00	15.81
	ATOM	2022	CD	ARG	A 259	0	8.910	13.054	18.244	1.00	16.58
	ATOM	2023	NE	ARG	A 259	0	9.204	11.818	17.528	1.00	16.91
	ATOM	2024	CZ	ARG	A 259	0	8.475	11.187	16.616	1.00	18.43
20	ATOM	2025	NH1	ARG	A 259	0	7.285	11.657	16.239	1.00	19.39
	ATOM	2026	NH2	ARG	A 259	0	8.907	10.070	16.045	1.00	17.95
	ATOM	2027	N	ALA	A 260	0	8.226	18.764	17.884	1.00	13.12
	ATOM	2028	CA	ALA	A 260	0	7.768	19.882	18.727	1.00	12.65
	ATOM	2029	C	ALA	A 260	0	6.237	19.763	18.802	1.00	14.47
25	ATOM	2030	O	ALA	A 260	0	5.545	20.140	17.868	1.00	14.73
	ATOM	2031	CB	ALA	A 260	0	8.281	21.188	18.165	1.00	9.58
	ATOM	2032	N	GLN	A 261	0	5.690	19.225	19.870	1.00	14.78
	ATOM	2033	CA	GLN	A 261	0	4.272	19.004	20.060	1.00	16.99
	ATOM	2034	C	GLN	A 261	0	3.606	20.154	20.803	1.00	15.01
30	ATOM	2035	O	GLN	A 261	0	3.914	20.389	21.961	1.00	13.86
	ATOM	2036	CB	GLN	A 261	0	4.118	17.747	20.924	1.00	20.94
	ATOM	2037	CG	GLN	A 261	0	2.717	17.131	20.940	1.00	27.53
	ATOM	2038	CD	GLN	A 261	0	2.721	15.991	21.947	1.00	29.63
	ATOM	2039	OE1	GLN	A 261	0	3.152	14.887	21.682	1.00	31.60
35	ATOM	2040	NE2	GLN	A 261	0	2.331	16.255	23.188	1.00	34.91
	ATOM	2041	N	PRO	A 262	0	2.663	20.820	20.167	1.00	14.60
	ATOM	2042	CA	PRO	A 262	0	1.974	21.969	20.739	1.00	15.72
	ATOM	2043	C	PRO	A 262	0	0.921	21.568	21.757	1.00	16.25

	ATOM	2044	O	PRO A 262	0	0.498	20.409	21.814	1.00	15.61
	ATOM	2045	CB	PRO A 262	0	1.401	22.752	19.539	1.00	13.88
	ATOM	2046	CG	PRO A 262	0	1.168	21.608	18.563	1.00	13.62
	ATOM	2047	CD	PRO A 262	0	2.257	20.570	18.772	1.00	13.23
5	ATOM	2048	N	ASN A 263	0	0.570	22.481	22.665	1.00	17.25
	ATOM	2049	CA	ASN A 263	0	-0.471	22.203	23.648	1.00	17.50
	ATOM	2050	C	ASN A 263	0	-1.834	22.460	22.981	1.00	18.43
	ATOM	2051	O	ASN A 263	0	-2.810	22.121	23.608	1.00	19.35
	ATOM	2052	CB	ASN A 263	0	-0.422	22.990	24.954	1.00	16.12
10	ATOM	2053	CG	ASN A 263	0	-0.333	24.493	24.728	1.00	16.97
	ATOM	2054	OD1	ASN A 263	0	0.236	25.002	23.751	1.00	15.54
	ATOM	2055	ND2	ASN A 263	0	-0.905	25.269	25.653	1.00	16.31
	ATOM	2056	N	LYS A 264	0	-1.947	23.055	21.818	1.00	20.51
	ATOM	2057	CA	LYS A 264	0	-3.256	23.208	21.180	1.00	24.76
15	ATOM	2058	C	LYS A 264	0	-3.055	23.395	19.683	1.00	23.64
	ATOM	2059	O	LYS A 264	0	-1.909	23.572	19.267	1.00	24.23
	ATOM	2060	CB	LYS A 264	0	-4.038	24.393	21.775	1.00	25.87
	ATOM	2061	CG	LYS A 264	0	-3.266	25.702	21.602	1.00	28.62
	ATOM	2062	CD	LYS A 264	0	-3.579	26.624	22.772	1.00	30.65
20	ATOM	2063	CE	LYS A 264	0	-4.114	27.960	22.283	1.00	32.62
	ATOM	2064	NZ	LYS A 264	0	-4.593	28.753	23.459	1.00	34.39
	ATOM	2065	N	GLY A 265	0	-4.112	23.386	18.892	1.00	22.60
	ATOM	2066	CA	GLY A 265	0	-3.959	23.591	17.452	1.00	22.98
	ATOM	2067	C	GLY A 265	0	-5.190	23.002	16.758	1.00	23.95
25	ATOM	2068	O	GLY A 265	0	-5.904	22.202	17.362	1.00	22.64
	ATOM	2069	N	ARG A 266	0	-5.398	23.434	15.537	1.00	24.60
	ATOM	2070	CA	ARG A 266	0	-6.527	23.051	14.734	1.00	26.24
	ATOM	2071	C	ARG A 266	0	-6.412	21.605	14.272	1.00	27.29
	ATOM	2072	O	ARG A 266	0	-5.329	21.074	14.015	1.00	25.41
30	ATOM	2073	CB	ARG A 266	0	-6.628	23.903	13.469	1.00	30.71
	ATOM	2074	CG	ARG A 266	0	-7.065	25.334	13.563	1.00	35.66
	ATOM	2075	CD	ARG A 266	0	-8.161	25.673	12.539	1.00	40.48
	ATOM	2076	NE	ARG A 266	0	-9.379	25.957	13.286	1.00	45.08
	ATOM	2077	CZ	ARG A 266	0	-10.551	25.334	13.319	1.00	47.09
35	ATOM	2078	NH1	ARG A 266	0	-10.921	24.294	12.577	1.00	48.10
	ATOM	2079	NH2	ARG A 266	0	-11.452	25.828	14.165	1.00	47.80
	ATOM	2080	N	ASN A 267	0	-7.586	20.983	14.141	1.00	25.17
	ATOM	2081	CA	ASN A 267	0	-7.727	19.669	13.602	1.00	23.96

ATOM 2082 C ASN A 267 0 -6.859 18.625 14.244 1.00 22.35
ATOM 2083 O ASN A 267 0 -6.306 17.864 13.448 1.00 23.57
ATOM 2084 CB ASN A 267 0 -7.390 19.695 12.098 1.00 26.46
ATOM 2085 CG ASN A 267 0 -8.461 20.426 11.309 1.00 29.21
5 ATOM 2086 OD1 ASN A 267 0 -8.190 21.226 10.405 1.00 30.18
ATOM 2087 ND2 ASN A 267 0 -9.681 20.075 11.701 1.00 28.77
ATOM 2088 N GLY A 268 0 -6.706 18.594 15.550 1.00 21.85
ATOM 2089 CA GLY A 268 0 -5.890 17.533 16.121 1.00 22.47
ATOM 2090 C GLY A 268 0 -4.383 17.760 16.118 1.00 23.29
10 ATOM 2091 O GLY A 268 0 -3.652 16.898 16.632 1.00 23.28
ATOM 2092 N LEU A 269 0 -3.880 18.901 15.676 1.00 22.69
ATOM 2093 CA LEU A 269 0 -2.454 19.222 15.684 1.00 22.62
ATOM 2094 C LEU A 269 0 -1.753 18.890 16.990 1.00 23.26
ATOM 2095 O LEU A 269 0 -0.650 18.335 17.035 1.00 23.42
15 ATOM 2096 CB LEU A 269 0 -2.311 20.713 15.472 1.00 22.28
ATOM 2097 CG LEU A 269 0 -1.183 21.414 14.745 1.00 23.42
ATOM 2098 CD1 LEU A 269 0 -0.508 22.380 15.682 1.00 19.64
ATOM 2099 CD2 LEU A 269 0 -0.213 20.492 14.009 1.00 21.26
ATOM 2100 N ALA A 270 0 -2.371 19.199 18.135 1.00 21.51
20 ATOM 2101 CA ALA A 270 0 -1.784 18.899 19.419 1.00 22.26
ATOM 2102 C ALA A 270 0 -1.612 17.415 19.680 1.00 23.22
ATOM 2103 O ALA A 270 0 -0.898 17.077 20.637 1.00 21.81
ATOM 2104 CB ALA A 270 0 -2.632 19.518 20.542 1.00 21.06
ATOM 2105 N GLY A 271 0 -2.337 16.521 18.996 1.00 23.75
25 ATOM 2106 CA GLY A 271 0 -2.190 15.125 19.372 1.00 24.98
ATOM 2107 C GLY A 271 0 -1.507 14.267 18.328 1.00 26.07
ATOM 2108 O GLY A 271 0 -1.501 13.045 18.523 1.00 26.26
ATOM 2109 N THR A 272 0 -0.906 14.825 17.278 1.00 26.48
ATOM 2110 CA THR A 272 0 -0.327 13.901 16.294 1.00 25.27
30 ATOM 2111 C THR A 272 0 0.986 14.362 15.701 1.00 25.58
ATOM 2112 O THR A 272 0 1.216 15.567 15.701 1.00 24.46
ATOM 2113 CB THR A 272 0 -1.380 13.759 15.164 1.00 24.40
ATOM 2114 OG1 THR A 272 0 -0.931 12.737 14.275 1.00 26.32
ATOM 2115 CG2 THR A 272 0 -1.575 15.022 14.347 1.00 22.50
35 ATOM 2116 N PHE A 273 0 1.714 13.443 15.062 1.00 24.01
ATOM 2117 CA PHE A 273 0 2.897 13.755 14.271 1.00 23.99
ATOM 2118 C PHE A 273 0 2.663 13.201 12.858 1.00 24.84
ATOM 2119 O PHE A 273 0 3.534 13.207 11.987 1.00 24.73

	ATOM	2120	CB	PHE A 273	0	4.175	13.094	14.812	1.00	22.16
	ATOM	2121	CG	PHE A 273	0	4.550	13.676	16.153	1.00	21.84
	ATOM	2122	CD1	PHE A 273	0	4.190	13.037	17.327	1.00	20.67
	ATOM	2123	CD2	PHE A 273	0	5.221	14.881	16.216	1.00	20.98
5	ATOM	2124	CE1	PHE A 273	0	4.538	13.574	18.554	1.00	21.75
	ATOM	2125	CE2	PHE A 273	0	5.559	15.428	17.440	1.00	21.65
	ATOM	2126	CZ	PHE A 273	0	5.216	14.787	18.616	1.00	22.38
	ATOM	2127	N	ALA A 274	0	1.440	12.718	12.647	1.00	24.38
	ATOM	2128	CA	ALA A 274	0	1.094	12.053	11.397	1.00	24.29
10	ATOM	2129	C	ALA A 274	0	1.399	12.920	10.194	1.00	24.15
	ATOM	2130	O	ALA A 274	0	0.990	14.078	10.161	1.00	23.07
	ATOM	2131	CB	ALA A 274	0	-0.385	11.681	11.387	1.00	23.53
	ATOM	2132	N	ASN A 275	0	2.075	12.355	9.204	1.00	23.41
	ATOM	2133	CA	ASN A 275	0	2.389	13.068	7.987	1.00	24.88
15	ATOM	2134	C	ASN A 275	0	3.498	14.093	8.191	1.00	22.73
	ATOM	2135	O	ASN A 275	0	3.708	14.947	7.337	1.00	21.57
	ATOM	2136	CB	ASN A 275	0	1.138	13.806	7.516	1.00	30.04
	ATOM	2137	CG	ASN A 275	0	0.194	13.070	6.633	1.00	35.28
	ATOM	2138	OD1	ASN A 275	0	-0.458	12.071	6.985	1.00	36.92
20	ATOM	2139	ND2	ASN A 275	0	0.156	13.655	5.427	1.00	37.87
	ATOM	2140	N	GLY A 276	0	4.185	14.083	9.322	1.00	22.10
	ATOM	2141	CA	GLY A 276	0	5.278	15.025	9.503	1.00	20.95
	ATOM	2142	C	GLY A 276	0	4.801	16.392	9.962	1.00	19.61
	ATOM	2143	O	GLY A 276	0	5.587	17.325	9.816	1.00	19.96
25	ATOM	2144	N	VAL A 277	0	3.600	16.504	10.540	1.00	16.82
	ATOM	2145	CA	VAL A 277	0	3.207	17.796	11.107	1.00	15.06
	ATOM	2146	C	VAL A 277	0	4.033	17.942	12.379	1.00	13.80
	ATOM	2147	O	VAL A 277	0	4.454	16.912	12.926	1.00	13.80
	ATOM	2148	CB	VAL A 277	0	1.676	17.849	11.397	1.00	14.37
30	ATOM	2149	CG1	VAL A 277	0	0.882	17.824	10.099	1.00	13.37
	ATOM	2150	CG2	VAL A 277	0	1.213	16.763	12.330	1.00	11.77
	ATOM	2151	N	ASN A 278	0	4.307	19.100	12.936	1.00	14.25
	ATOM	2152	CA	ASN A 278	0	5.026	19.262	14.209	1.00	13.80
	ATOM	2153	C	ASN A 278	0	6.443	18.640	14.208	1.00	13.80
35	ATOM	2154	O	ASN A 278	0	7.020	18.228	15.229	1.00	11.81
	ATOM	2155	CB	ASN A 278	0	4.216	18.607	15.312	1.00	14.24
	ATOM	2156	CG	ASN A 278	0	2.890	19.288	15.659	1.00	15.35
	ATOM	2157	OD1	ASN A 278	0	1.952	18.531	16.009	1.00	14.81

ATOM 2158 ND2 ASN A 278 O 2.821 20.591 15.593 1.00 10.69
ATOM 2159 N SER A 279 O 7.044 18.595 13.025 1.00 12.68
ATOM 2160 CA SER A 279 O 8.296 17.892 12.860 1.00 15.48
ATOM 2161 C SER A 279 O 9.323 18.571 11.964 1.00 15.07
5 ATOM 2162 O SER A 279 O 8.995 19.309 11.044 1.00 12.20
ATOM 2163 CB SER A 279 O 7.976 16.549 12.122 1.00 14.76
ATOM 2164 OG SER A 279 O 7.268 15.722 13.054 1.00 19.57
ATOM 2165 N ALA A 280 O 10.570 18.152 12.229 1.00 15.67
ATOM 2166 CA ALA A 280 O 11.664 18.548 11.327 1.00 16.75
10 ATOM 2167 C ALA A 280 O 12.620 17.341 11.287 1.00 15.83
ATOM 2168 O ALA A 280 O 12.438 16.346 11.997 1.00 15.55
ATOM 2169 CB ALA A 280 O 12.363 19.828 11.745 1.00 16.40
ATOM 2170 N ILE A 281 O 13.669 17.478 10.485 1.00 14.79
ATOM 2171 CA ILE A 281 O 14.569 16.346 10.257 1.00 15.55
15 ATOM 2172 C ILE A 281 O 16.002 16.610 10.699 1.00 15.92
ATOM 2173 O ILE A 281 O 16.649 17.577 10.284 1.00 14.96
ATOM 2174 CB ILE A 281 O 14.557 16.013 8.735 1.00 16.44
ATOM 2175 CG1 ILE A 281 O 13.147 15.573 8.275 1.00 16.42
ATOM 2176 CG2 ILE A 281 O 15.615 14.959 8.421 1.00 15.71
20 ATOM 2177 CD1 ILE A 281 O 12.981 15.376 6.771 1.00 14.22
ATOM 2178 N LEU A 282 O 16.505 15.698 11.515 1.00 16.76
ATOM 2179 CA LEU A 282 O 17.920 15.736 11.912 1.00 15.82
ATOM 2180 C LEU A 282 O 18.655 14.747 10.990 1.00 16.16
ATOM 2181 O LEU A 282 O 18.409 13.530 11.034 1.00 16.41
25 ATOM 2182 CB LEU A 282 O 18.129 15.400 13.379 1.00 14.54
ATOM 2183 CG LEU A 282 O 19.632 15.346 13.773 1.00 16.00
ATOM 2184 CD1 LEU A 282 O 20.100 16.767 14.052 1.00 16.10
ATOM 2185 CD2 LEU A 282 O 19.865 14.469 14.970 1.00 13.21
ATOM 2186 N ARG A 283 O 19.490 15.254 10.100 1.00 15.20
30 ATOM 2187 CA ARG A 283 O 20.160 14.377 9.141 1.00 16.98
ATOM 2188 C ARG A 283 O 21.683 14.326 9.279 1.00 17.31
ATOM 2189 O ARG A 283 O 22.398 15.330 9.203 1.00 17.82
ATOM 2190 CB ARG A 283 O 19.844 14.861 7.736 1.00 17.30
ATOM 2191 CG ARG A 283 O 20.417 13.978 6.641 1.00 19.94
35 ATOM 2192 CD ARG A 283 O 19.860 14.446 5.301 1.00 20.04
ATOM 2193 NE ARG A 283 O 18.474 14.010 5.208 1.00 21.56
ATOM 2194 CZ ARG A 283 O 17.479 14.530 4.505 1.00 21.81
ATOM 2195 NH1 ARG A 283 O 16.287 13.922 4.564 1.00 21.52

ATOM 2196 NH2 ARG A 283 0 17.653 15.634 3.797 1.00 21.84
ATOM 2197 N TYR A 284 0 22.163 13.136 9.567 1.00 16.79
ATOM 2198 CA TYR A 284 0 23.581 12.821 9.620 1.00 16.35
ATOM 2199 C TYR A 284 0 24.155 12.787 8.198 1.00 16.52
5 ATOM 2200 O TYR A 284 0 23.556 12.226 7.271 1.00 16.33
ATOM 2201 CB TYR A 284 0 23.730 11.444 10.252 1.00 16.51
ATOM 2202 CG TYR A 284 0 23.727 11.460 11.755 1.00 17.09
ATOM 2203 CD1 TYR A 284 0 24.910 11.178 12.437 1.00 17.37
ATOM 2204 CD2 TYR A 284 0 22.601 11.753 12.504 1.00 17.15
10 ATOM 2205 CE1 TYR A 284 0 24.937 11.163 13.817 1.00 17.64
ATOM 2206 CE2 TYR A 284 0 22.623 11.770 13.892 1.00 15.66
ATOM 2207 CZ TYR A 284 0 23.796 11.476 14.542 1.00 15.99
ATOM 2208 OH TYR A 284 0 23.873 11.448 15.919 1.00 14.03
ATOM 2209 N ALA A 285 0 25.276 13.463 7.992 1.00 17.42
15 ATOM 2210 CA ALA A 285 0 25.950 13.461 6.692 1.00 19.35
ATOM 2211 C ALA A 285 0 26.186 11.994 6.328 1.00 19.20
ATOM 2212 O ALA A 285 0 26.692 11.237 7.146 1.00 17.18
ATOM 2213 CB ALA A 285 0 27.293 14.194 6.770 1.00 19.86
ATOM 2214 N GLY A 286 0 25.724 11.614 5.153 1.00 20.01
20 ATOM 2215 CA GLY A 286 0 25.851 10.224 4.747 1.00 21.88
ATOM 2216 C GLY A 286 0 24.507 9.510 4.754 1.00 22.87
ATOM 2217 O GLY A 286 0 24.406 8.418 4.197 1.00 23.06
ATOM 2218 N ALA A 287 0 23.504 10.076 5.423 1.00 22.81
ATOM 2219 CA ALA A 287 0 22.176 9.449 5.364 1.00 21.50
25 ATOM 2220 C ALA A 287 0 21.482 9.880 4.079 1.00 20.58
ATOM 2221 O ALA A 287 0 21.647 11.032 3.629 1.00 19.44
ATOM 2222 CB ALA A 287 0 21.340 9.890 6.562 1.00 21.34
ATOM 2223 N ALA A 288 0 20.632 9.041 3.523 1.00 21.20
ATOM 2224 CA ALA A 288 0 19.899 9.450 2.310 1.00 23.46
30 ATOM 2225 C ALA A 288 0 18.965 10.629 2.513 1.00 24.70
ATOM 2226 O ALA A 288 0 18.494 10.929 3.621 1.00 25.30
ATOM 2227 CB ALA A 288 0 19.012 8.298 1.827 1.00 24.84
ATOM 2228 N ASN A 289 0 18.638 11.300 1.411 1.00 25.98
ATOM 2229 CA ASN A 289 0 17.674 12.398 1.439 1.00 27.16
35 ATOM 2230 C ASN A 289 0 16.303 11.707 1.505 1.00 27.36
ATOM 2231 O ASN A 289 0 15.761 11.330 0.477 1.00 27.56
ATOM 2232 CB ASN A 289 0 17.784 13.250 0.189 1.00 29.01
ATOM 2233 CG ASN A 289 0 18.808 14.364 0.299 1.00 30.44

	ATOM	2234	OD1	ASN	A	289	0	20.005	14.168	0.545	1.00	30.40
	ATOM	2235	ND2	ASN	A	289	0	18.340	15.591	0.121	1.00	31.98
	ATOM	2236	N	ALA	A	290	0	15.837	11.426	2.703	1.00	25.22
	ATOM	2237	CA	ALA	A	290	0	14.600	10.727	2.955	1.00	25.09
5	ATOM	2238	C	ALA	A	290	0	14.087	11.057	4.363	1.00	22.98
	ATOM	2239	O	ALA	A	290	0	14.830	11.555	5.205	1.00	22.02
	ATOM	2240	CB	ALA	A	290	0	14.764	9.210	2.823	1.00	24.89
	ATOM	2241	N	ASP	A	291	0	12.822	10.718	4.597	1.00	21.88
	ATOM	2242	CA	ASP	A	291	0	12.223	10.985	5.907	1.00	21.71
10	ATOM	2243	C	ASP	A	291	0	12.724	9.965	6.916	1.00	18.93
	ATOM	2244	O	ASP	A	291	0	12.911	8.814	6.596	1.00	19.66
	ATOM	2245	CB	ASP	A	291	0	10.695	10.862	5.834	1.00	22.63
	ATOM	2246	CG	ASP	A	291	0	10.088	12.005	5.076	1.00	25.41
	ATOM	2247	OD1	ASP	A	291	0	10.781	12.988	4.735	1.00	27.11
15	ATOM	2248	OD2	ASP	A	291	0	8.885	11.932	4.812	1.00	27.47
	ATOM	2249	N	PRO	A	292	0	12.863	10.362	8.164	1.00	16.14
	ATOM	2250	CA	PRO	A	292	0	13.229	9.473	9.230	1.00	15.27
	ATOM	2251	C	PRO	A	292	0	12.087	8.484	9.389	1.00	19.40
	ATOM	2252	O	PRO	A	292	0	10.925	8.785	9.063	1.00	20.36
20	ATOM	2253	CB	PRO	A	292	0	13.257	10.335	10.511	1.00	14.68
	ATOM	2254	CG	PRO	A	292	0	13.291	11.739	9.941	1.00	14.39
	ATOM	2255	CD	PRO	A	292	0	12.606	11.735	8.593	1.00	14.02
	ATOM	2256	N	THR	A	293	0	12.357	7.361	10.024	1.00	19.91
	ATOM	2257	CA	THR	A	293	0	11.360	6.379	10.373	1.00	20.62
25	ATOM	2258	C	THR	A	293	0	11.589	6.055	11.847	1.00	20.83
	ATOM	2259	O	THR	A	293	0	11.323	4.943	12.287	1.00	23.91
	ATOM	2260	CB	THR	A	293	0	11.556	5.088	9.557	1.00	23.41
	ATOM	2261	OG1	THR	A	293	0	12.874	4.577	9.836	1.00	24.50
	ATOM	2262	CG2	THR	A	293	0	11.438	5.341	8.058	1.00	23.72
30	ATOM	2263	N	THR	A	294	0	12.172	6.958	12.624	1.00	19.30
	ATOM	2264	CA	THR	A	294	0	12.440	6.634	14.017	1.00	19.42
	ATOM	2265	C	THR	A	294	0	11.214	6.896	14.878	1.00	20.66
	ATOM	2266	O	THR	A	294	0	10.240	7.485	14.411	1.00	19.89
	ATOM	2267	CB	THR	A	294	0	13.565	7.548	14.553	1.00	19.28
35	ATOM	2268	OG1	THR	A	294	0	13.174	8.889	14.251	1.00	17.55
	ATOM	2269	CG2	THR	A	294	0	14.860	7.214	13.822	1.00	19.27
	ATOM	2270	N	SER	A	295	0	11.359	6.576	16.159	1.00	23.85
	ATOM	2271	CA	SER	A	295	0	10.274	6.851	17.095	1.00	27.18

ATOM 2272 C SER A 295 0 10.781 7.484 18.375 1.00 27.92
ATOM 2273 O SER A 295 0 11.900 7.292 18.844 1.00 27.09
ATOM 2274 CB SER A 295 0 9.513 5.546 17.367 1.00 28.92
ATOM 2275 OG SER A 295 0 10.389 4.761 18.160 1.00 33.04
5 ATOM 2276 N ALA A 296 0 9.930 8.331 18.965 1.00 30.04
ATOM 2277 CA ALA A 296 0 10.295 9.003 20.207 1.00 29.82
ATOM 2278 C ALA A 296 0 10.552 8.011 21.327 1.00 30.83
ATOM 2279 O ALA A 296 0 10.114 6.861 21.328 1.00 30.67
ATOM 2280 CB ALA A 296 0 9.187 9.968 20.599 1.00 30.16
10 ATOM 2281 N ASN A 297 0 11.286 8.489 22.328 1.00 31.65
ATOM 2282 CA ASN A 297 0 11.543 7.750 23.549 1.00 32.16
ATOM 2283 C ASN A 297 0 10.200 7.650 24.285 1.00 32.80
ATOM 2284 O ASN A 297 0 9.492 8.616 24.565 1.00 31.30
ATOM 2285 CB ASN A 297 0 12.522 8.497 24.443 1.00 33.07
15 ATOM 2286 CG ASN A 297 0 12.869 7.742 25.706 1.00 35.21
ATOM 2287 OD1 ASN A 297 0 12.116 6.965 26.284 1.00 35.45
ATOM 2288 ND2 ASN A 297 0 14.106 7.982 26.162 1.00 37.10
ATOM 2289 N PRO A 298 0 9.865 6.430 24.647 1.00 33.40
ATOM 2290 CA PRO A 298 0 8.626 6.116 25.331 1.00 33.89
20 ATOM 2291 C PRO A 298 0 8.580 6.690 26.732 1.00 32.60
ATOM 2292 O PRO A 298 0 7.522 7.155 27.173 1.00 32.72
ATOM 2293 CB PRO A 298 0 8.505 4.576 25.358 1.00 35.13
ATOM 2294 CG PRO A 298 0 9.932 4.147 25.128 1.00 34.52
ATOM 2295 CD PRO A 298 0 10.630 5.222 24.323 1.00 34.10
25 ATOM 2296 N ASN A 299 0 9.689 6.721 27.461 1.00 29.60
ATOM 2297 CA ASN A 299 0 9.701 7.229 28.834 1.00 28.47
ATOM 2298 C ASN A 299 0 10.818 8.251 29.006 1.00 27.18
ATOM 2299 O ASN A 299 0 11.906 7.967 29.528 1.00 25.69
ATOM 2300 CB ASN A 299 0 9.964 6.017 29.747 1.00 29.50
30 ATOM 2301 CG ASN A 299 0 8.907 4.935 29.673 1.00 32.34
ATOM 2302 OD1 ASN A 299 0 9.090 3.873 29.075 1.00 33.50
ATOM 2303 ND2 ASN A 299 0 7.735 5.182 30.251 1.00 33.04
ATOM 2304 N PRO A 300 0 10.629 9.450 28.498 1.00 26.02
ATOM 2305 CA PRO A 300 0 11.668 10.486 28.498 1.00 23.99
35 ATOM 2306 C PRO A 300 0 11.987 11.054 29.860 1.00 21.16
ATOM 2307 O PRO A 300 0 11.051 11.174 30.649 1.00 20.81
ATOM 2308 CB PRO A 300 0 11.137 11.623 27.594 1.00 23.33
ATOM 2309 CG PRO A 300 0 9.645 11.422 27.729 1.00 24.68

ATOM 2310 CD PRO A 300 0 9.387 9.918 27.882 1.00 25.22
ATOM 2311 N ALA A 301 0 13.242 11.361 30.179 1.00 19.17
ATOM 2312 CA ALA A 301 0 13.538 12.139 31.410 1.00 17.57
ATOM 2313 C ALA A 301 0 13.159 13.588 31.084 1.00 16.53
5 ATOM 2314 O ALA A 301 0 13.613 14.235 30.131 1.00 16.24
ATOM 2315 CB ALA A 301 0 15.006 11.982 31.774 1.00 17.17
ATOM 2316 N GLN A 302 0 12.139 14.131 31.723 1.00 18.15
ATOM 2317 CA GLN A 302 0 11.580 15.446 31.441 1.00 19.34
ATOM 2318 C GLN A 302 0 12.335 16.580 32.124 1.00 19.16
10 ATOM 2319 O GLN A 302 0 12.577 16.444 33.324 1.00 19.07
ATOM 2320 CB GLN A 302 0 10.122 15.483 31.937 1.00 19.10
ATOM 2321 CG GLN A 302 0 9.304 16.666 31.478 1.00 20.55
ATOM 2322 CD GLN A 302 0 8.960 16.738 30.009 1.00 20.18
ATOM 2323 OE1 GLN A 302 0 8.843 15.721 29.331 1.00 22.29
15 ATOM 2324 NE2 GLN A 302 0 8.813 17.936 29.436 1.00 18.46
ATOM 2325 N LEU A 303 0 12.629 17.681 31.444 1.00 17.92
ATOM 2326 CA LEU A 303 0 13.241 18.824 32.139 1.00 17.32
ATOM 2327 C LEU A 303 0 12.316 19.357 33.232 1.00 17.65
ATOM 2328 O LEU A 303 0 11.140 19.664 33.021 1.00 17.55
20 ATOM 2329 CB LEU A 303 0 13.489 19.988 31.168 1.00 15.14
ATOM 2330 CG LEU A 303 0 13.919 21.317 31.797 1.00 16.94
ATOM 2331 CD1 LEU A 303 0 15.262 21.146 32.504 1.00 17.30
ATOM 2332 CD2 LEU A 303 0 13.988 22.432 30.764 1.00 12.82
ATOM 2333 N ASN A 304 0 12.868 19.580 34.399 1.00 17.34
25 ATOM 2334 CA ASN A 304 0 12.199 20.212 35.531 1.00 19.12
ATOM 2335 C ASN A 304 0 13.071 21.435 35.833 1.00 19.06
ATOM 2336 O ASN A 304 0 14.265 21.349 36.122 1.00 20.37
ATOM 2337 CB ASN A 304 0 12.073 19.244 36.704 1.00 22.16
ATOM 2338 CG ASN A 304 0 11.748 19.900 38.024 1.00 25.02
30 ATOM 2339 OD1 ASN A 304 0 11.506 21.111 38.146 1.00 26.72
ATOM 2340 ND2 ASN A 304 0 11.766 19.133 39.114 1.00 25.99
ATOM 2341 N GLU A 305 0 12.541 22.629 35.662 1.00 17.64
ATOM 2342 CA GLU A 305 0 13.204 23.890 35.840 1.00 16.64
ATOM 2343 C GLU A 305 0 13.884 23.977 37.194 1.00 16.06
35 ATOM 2344 O GLU A 305 0 14.965 24.564 37.208 1.00 14.78
ATOM 2345 CB GLU A 305 0 12.286 25.085 35.567 1.00 15.91
ATOM 2346 CG GLU A 305 0 12.898 26.484 35.831 1.00 14.81
ATOM 2347 CD GLU A 305 0 11.794 27.546 35.666 1.00 15.72

ATOM 2348 OE1 GLU A 305 O 11.584 28.026 34.527 1.00 14.63
ATOM 2349 OE2 GLU A 305 O 11.154 27.861 36.685 1.00 13.05
ATOM 2350 N ALA A 306 O 13.416 23.432 38.298 1.00 15.83
ATOM 2351 CA ALA A 306 O 14.131 23.509 39.565 1.00 17.92
5 ATOM 2352 C ALA A 306 O 15.437 22.682 39.532 1.00 18.62
ATOM 2353 O ALA A 306 O 16.213 22.867 40.464 1.00 18.37
ATOM 2354 CB ALA A 306 O 13.283 22.993 40.711 1.00 16.23
ATOM 2355 N ASP A 307 O 15.721 21.860 38.523 1.00 18.04
ATOM 2356 CA ASP A 307 O 16.988 21.164 38.409 1.00 18.68
10 ATOM 2357 C ASP A 307 O 18.035 22.039 37.707 1.00 19.89
ATOM 2358 O ASP A 307 O 19.239 21.695 37.739 1.00 20.36
ATOM 2359 CB ASP A 307 O 16.904 19.863 37.592 1.00 17.64
ATOM 2360 CG ASP A 307 O 15.980 18.873 38.290 1.00 18.17
ATOM 2361 OD1 ASP A 307 O 15.918 18.919 39.535 1.00 18.27
15 ATOM 2362 OD2 ASP A 307 O 15.311 18.094 37.592 1.00 17.32
ATOM 2363 N LEU A 308 O 17.583 23.110 37.052 1.00 16.43
ATOM 2364 CA LEU A 308 O 18.581 23.962 36.377 1.00 16.80
ATOM 2365 C LEU A 308 O 19.327 24.827 37.384 1.00 16.94
ATOM 2366 O LEU A 308 O 18.784 25.320 38.380 1.00 17.28
20 ATOM 2367 CB LEU A 308 O 17.925 24.775 35.257 1.00 12.52
ATOM 2368 CG LEU A 308 O 17.436 23.936 34.073 1.00 12.15
ATOM 2369 CD1 LEU A 308 O 16.692 24.834 33.101 1.00 11.67
ATOM 2370 CD2 LEU A 308 O 18.547 23.186 33.341 1.00 12.23
ATOM 2371 N HIS A 309 O 20.640 24.968 37.243 1.00 18.01
25 ATOM 2372 CA HIS A 309 O 21.430 25.802 38.158 1.00 18.47
ATOM 2373 C HIS A 309 O 22.328 26.770 37.394 1.00 17.36
ATOM 2374 O HIS A 309 O 23.015 26.378 36.459 1.00 17.82
ATOM 2375 CB HIS A 309 O 22.267 24.997 39.140 1.00 18.51
ATOM 2376 CG HIS A 309 O 21.470 24.052 39.965 1.00 20.71
30 ATOM 2377 ND1 HIS A 309 O 21.526 22.684 39.790 1.00 21.77
ATOM 2378 CD2 HIS A 309 O 20.578 24.285 40.956 1.00 22.07
ATOM 2379 CE1 HIS A 309 O 20.701 22.115 40.657 1.00 22.85
ATOM 2380 NE2 HIS A 309 O 20.120 23.059 41.377 1.00 22.67
ATOM 2381 N ALA A 310 O 22.352 28.005 37.837 1.00 17.27
35 ATOM 2382 CA ALA A 310 O 23.173 29.068 37.228 1.00 17.74
ATOM 2383 C ALA A 310 O 24.663 28.775 37.342 1.00 18.13
ATOM 2384 O ALA A 310 O 25.103 28.233 38.369 1.00 19.61
ATOM 2385 CB ALA A 310 O 22.869 30.356 37.985 1.00 16.92

ATOM 2386 N LEU A 311 0 25.427 29.021 36.304 1.00 19.30
ATOM 2387 CA LEU A 311 0 26.856 28.762 36.277 1.00 20.71
ATOM 2388 C LEU A 311 0 27.655 29.922 36.881 1.00 22.67
ATOM 2389 O LEU A 311 0 28.581 29.788 37.682 1.00 23.06
5 ATOM 2390 CB LEU A 311 0 27.305 28.591 34.817 1.00 20.57
ATOM 2391 CG LEU A 311 0 28.796 28.196 34.684 1.00 21.52
ATOM 2392 CD1 LEU A 311 0 28.993 26.783 35.229 1.00 20.80
ATOM 2393 CD2 LEU A 311 0 29.319 28.282 33.254 1.00 20.17
ATOM 2394 N ILE A 312 0 27.333 31.142 36.449 1.00 23.42
10 ATOM 2395 CA ILE A 312 0 28.092 32.311 36.899 1.00 24.86
ATOM 2396 C ILE A 312 0 27.337 33.157 37.914 1.00 26.54
ATOM 2397 O ILE A 312 0 26.154 33.467 37.739 1.00 25.31
ATOM 2398 CB ILE A 312 0 28.397 33.179 35.670 1.00 24.45
ATOM 2399 CG1 ILE A 312 0 28.998 32.330 34.576 1.00 25.60
15 ATOM 2400 CG2 ILE A 312 0 29.261 34.373 36.075 1.00 26.44
ATOM 2401 CD1 ILE A 312 0 30.462 32.026 34.512 1.00 24.51
ATOM 2402 N ASP A 313 0 28.008 33.523 39.003 1.00 28.70
ATOM 2403 CA ASP A 313 0 27.432 34.339 40.071 1.00 30.99
ATOM 2404 C ASP A 313 0 26.065 33.763 40.417 1.00 29.83
20 ATOM 2405 O ASP A 313 0 25.024 34.385 40.235 1.00 28.51
ATOM 2406 CB ASP A 313 0 27.266 35.777 39.576 1.00 35.88
ATOM 2407 CG ASP A 313 0 28.532 36.505 39.187 1.00 40.21
ATOM 2408 OD1 ASP A 313 0 29.577 36.243 39.847 1.00 42.99
ATOM 2409 OD2 ASP A 313 0 28.525 37.346 38.252 1.00 40.95
25 ATOM 2410 N PRO A 314 0 26.041 32.517 40.863 1.00 28.77
ATOM 2411 CA PRO A 314 0 24.841 31.743 41.074 1.00 27.80
ATOM 2412 C PRO A 314 0 23.865 32.198 42.137 1.00 26.49
ATOM 2413 O PRO A 314 0 22.671 31.857 42.032 1.00 27.17
ATOM 2414 CB PRO A 314 0 25.297 30.311 41.479 1.00 27.61
30 ATOM 2415 CG PRO A 314 0 26.711 30.573 41.929 1.00 29.37
ATOM 2416 CD PRO A 314 0 27.248 31.726 41.111 1.00 28.10
ATOM 2417 N ALA A 315 0 24.364 32.818 43.206 1.00 23.45
ATOM 2418 CA ALA A 315 0 23.505 33.092 44.336 1.00 22.34
ATOM 2419 C ALA A 315 0 22.414 34.111 44.008 1.00 22.46
35 ATOM 2420 O ALA A 315 0 22.678 35.127 43.370 1.00 22.52
ATOM 2421 CB ALA A 315 0 24.294 33.617 45.532 1.00 21.68
ATOM 2422 N ALA A 316 0 21.226 33.838 44.534 1.00 20.85
ATOM 2423 CA ALA A 316 0 20.133 34.805 44.422 1.00 20.78

ATOM 2424 C ALA A 316 O 20.547 36.010 45.271 1.00 20.55
ATOM 2425 O ALA A 316 O 21.143 35.846 46.333 1.00 21.47
ATOM 2426 CB ALA A 316 O 18.897 34.166 45.043 1.00 18.32
ATOM 2427 N PRO A 317 O 20.237 37.212 44.864 1.00 20.84
5 ATOM 2428 CA PRO A 317 O 20.539 38.410 45.634 1.00 20.82
ATOM 2429 C PRO A 317 O 19.766 38.449 46.945 1.00 20.96
ATOM 2430 O PRO A 317 O 18.668 37.885 47.030 1.00 21.42
ATOM 2431 CB PRO A 317 O 20.064 39.590 44.758 1.00 21.64
ATOM 2432 CG PRO A 317 O 19.178 38.938 43.746 1.00 21.69
10 ATOM 2433 CD PRO A 317 O 19.517 37.466 43.619 1.00 20.10
ATOM 2434 N GLY A 318 O 20.269 39.080 47.988 1.00 20.69
ATOM 2435 CA GLY A 318 O 19.533 39.282 49.225 1.00 21.68
ATOM 2436 C GLY A 318 O 19.631 38.218 50.283 1.00 22.93
ATOM 2437 O GLY A 318 O 20.344 37.221 50.101 1.00 23.87
15 ATOM 2438 N ILE A 319 O 18.895 38.398 51.368 1.00 22.20
ATOM 2439 CA ILE A 319 O 18.879 37.432 52.454 1.00 24.16
ATOM 2440 C ILE A 319 O 18.169 36.189 51.956 1.00 25.28
ATOM 2441 O ILE A 319 O 17.071 36.271 51.405 1.00 26.26
ATOM 2442 CB ILE A 319 O 18.208 38.030 53.704 1.00 24.54
20 ATOM 2443 CG1 ILE A 319 O 19.075 39.176 54.213 1.00 25.08
ATOM 2444 CG2 ILE A 319 O 17.944 37.012 54.793 1.00 24.03
ATOM 2445 CD1 ILE A 319 O 18.262 40.183 55.006 1.00 27.56
ATOM 2446 N PRO A 320 O 18.762 35.030 52.159 1.00 26.23
ATOM 2447 CA PRO A 320 O 18.273 33.748 51.684 1.00 26.64
25 ATOM 2448 C PRO A 320 O 17.105 33.172 52.453 1.00 26.74
ATOM 2449 O PRO A 320 O 17.140 32.025 52.896 1.00 27.54
ATOM 2450 CB PRO A 320 O 19.501 32.801 51.772 1.00 27.16
ATOM 2451 CG PRO A 320 O 20.216 33.388 52.985 1.00 25.20
ATOM 2452 CD PRO A 320 O 20.061 34.891 52.837 1.00 25.62
30 ATOM 2453 N THR A 321 O 16.022 33.909 52.611 1.00 27.35
ATOM 2454 CA THR A 321 O 14.820 33.550 53.329 1.00 28.07
ATOM 2455 C THR A 321 O 13.632 34.190 52.603 1.00 27.48
ATOM 2456 O THR A 321 O 13.597 35.383 52.302 1.00 27.13
ATOM 2457 CB THR A 321 O 14.824 34.085 54.780 1.00 29.87
35 ATOM 2458 OG1 THR A 321 O 15.957 33.582 55.511 1.00 31.85
ATOM 2459 CG2 THR A 321 O 13.548 33.687 55.507 1.00 31.06
ATOM 2460 N PRO A 322 O 12.630 33.378 52.326 1.00 26.63
ATOM 2461 CA PRO A 322 O 11.428 33.824 51.637 1.00 25.91

ATOM 2462 C PRO A 322 O 10.892 35.072 52.313 1.00 25.37
ATOM 2463 O PRO A 322 O 10.945 35.194 53.542 1.00 25.02
ATOM 2464 CB PRO A 322 O 10.456 32.638 51.661 1.00 26.11
ATOM 2465 CG PRO A 322 O 11.370 31.477 51.931 1.00 26.67
5 ATOM 2466 CD PRO A 322 O 12.592 31.961 52.691 1.00 26.21
ATOM 2467 N GLY A 323 O 10.432 36.075 51.573 1.00 24.30
ATOM 2468 CA GLY A 323 O 9.943 37.288 52.197 1.00 24.13
ATOM 2469 C GLY A 323 O 11.013 38.161 52.842 1.00 25.48
ATOM 2470 O GLY A 323 O 10.603 39.128 53.512 1.00 25.28
10 ATOM 2471 N ALA A 324 O 12.320 37.959 52.688 1.00 24.80
ATOM 2472 CA ALA A 324 O 13.278 38.831 53.377 1.00 24.61
ATOM 2473 C ALA A 324 O 14.034 39.773 52.451 1.00 23.92
ATOM 2474 O ALA A 324 O 15.148 40.225 52.748 1.00 24.53
ATOM 2475 CB ALA A 324 O 14.255 38.012 54.204 1.00 23.79
15 ATOM 2476 N ALA A 325 O 13.423 40.081 51.315 1.00 22.22
ATOM 2477 CA ALA A 325 O 14.033 40.985 50.341 1.00 20.42
ATOM 2478 C ALA A 325 O 13.825 42.423 50.803 1.00 19.97
ATOM 2479 O ALA A 325 O 12.987 42.648 51.677 1.00 18.14
ATOM 2480 CB ALA A 325 O 13.272 40.763 49.018 1.00 19.40
20 ATOM 2481 N ASP A 326 O 14.422 43.421 50.161 1.00 20.69
ATOM 2482 CA ASP A 326 O 14.141 44.804 50.529 1.00 22.54
ATOM 2483 C ASP A 326 O 12.702 45.158 50.220 1.00 22.83
ATOM 2484 O ASP A 326 O 12.015 45.754 51.030 1.00 23.68
ATOM 2485 CB ASP A 326 O 15.089 45.767 49.789 1.00 22.32
25 ATOM 2486 CG ASP A 326 O 16.494 45.378 50.238 1.00 23.83
ATOM 2487 OD1 ASP A 326 O 16.650 45.284 51.475 1.00 24.78
ATOM 2488 OD2 ASP A 326 O 17.393 45.171 49.409 1.00 24.90
ATOM 2489 N VAL A 327 O 12.254 44.821 49.026 1.00 24.29
ATOM 2490 CA VAL A 327 O 10.914 45.064 48.503 1.00 23.57
30 ATOM 2491 C VAL A 327 O 10.246 43.721 48.170 1.00 23.46
ATOM 2492 O VAL A 327 O 10.785 42.933 47.386 1.00 22.62
ATOM 2493 CB VAL A 327 O 10.946 45.898 47.220 1.00 24.70
ATOM 2494 CG1 VAL A 327 O 9.554 46.274 46.751 1.00 24.11
ATOM 2495 CG2 VAL A 327 O 11.773 47.173 47.420 1.00 26.30
35 ATOM 2496 N ASN A 328 O 9.113 43.463 48.811 1.00 21.44
ATOM 2497 CA ASN A 328 O 8.390 42.212 48.717 1.00 23.21
ATOM 2498 C ASN A 328 O 6.986 42.410 48.158 1.00 23.12
ATOM 2499 O ASN A 328 O 6.140 43.030 48.799 1.00 22.76

	ATOM	2500	CB	ASN A 328	0	8.223	41.603	50.121	1.00	23.09
	ATOM	2501	CG	ASN A 328	0	9.569	41.204	50.693	1.00	24.61
	ATOM	2502	OD1	ASN A 328	0	10.181	40.188	50.295	1.00	25.87
	ATOM	2503	ND2	ASN A 328	0	10.017	42.029	51.617	1.00	21.47
5	ATOM	2504	N	LEU A 329	0	6.776	42.000	46.923	1.00	23.14
	ATOM	2505	CA	LEU A 329	0	5.497	42.179	46.268	1.00	24.23
	ATOM	2506	C	LEU A 329	0	4.859	40.822	45.953	1.00	25.21
	ATOM	2507	O	LEU A 329	0	5.489	39.876	45.469	1.00	24.20
	ATOM	2508	CB	LEU A 329	0	5.622	42.963	44.948	1.00	24.33
10	ATOM	2509	CG	LEU A 329	0	6.369	44.279	45.082	1.00	26.30
	ATOM	2510	CD1	LEU A 329	0	6.778	44.884	43.757	1.00	26.24
	ATOM	2511	CD2	LEU A 329	0	5.550	45.249	45.913	1.00	27.07
	ATOM	2512	N	ARG A 330	0	3.562	40.806	46.204	1.00	25.13
	ATOM	2513	CA	ARG A 330	0	2.740	39.641	45.899	1.00	27.48
15	ATOM	2514	C	ARG A 330	0	1.628	40.116	44.965	1.00	27.52
	ATOM	2515	O	ARG A 330	0	0.988	41.132	45.257	1.00	27.17
	ATOM	2516	CB	ARG A 330	0	2.200	39.017	47.166	1.00	29.82
	ATOM	2517	CG	ARG A 330	0	1.351	37.794	46.932	1.00	33.18
	ATOM	2518	CD	ARG A 330	0	0.880	37.251	48.284	1.00	37.06
20	ATOM	2519	NE	ARG A 330	0	0.305	35.914	48.038	1.00	40.34
	ATOM	2520	CZ	ARG A 330	0	1.009	34.803	48.298	1.00	40.82
	ATOM	2521	NH1	ARG A 330	0	2.229	34.903	48.812	1.00	40.36
	ATOM	2522	NH2	ARG A 330	0	0.415	33.642	48.040	1.00	41.33
	ATOM	2523	N	PHE A 331	0	1.507	39.481	43.795	1.00	25.88
25	ATOM	2524	CA	PHE A 331	0	0.475	39.937	42.855	1.00	25.87
	ATOM	2525	C	PHE A 331	0	-0.657	38.919	42.779	1.00	25.94
	ATOM	2526	O	PHE A 331	0	-0.441	37.697	42.824	1.00	24.61
	ATOM	2527	CB	PHE A 331	0	1.102	40.269	41.511	1.00	25.94
	ATOM	2528	CG	PHE A 331	0	1.884	41.565	41.496	1.00	28.66
30	ATOM	2529	CD1	PHE A 331	0	1.282	42.782	41.759	1.00	28.04
	ATOM	2530	CD2	PHE A 331	0	3.246	41.569	41.214	1.00	29.71
	ATOM	2531	CE1	PHE A 331	0	1.988	43.963	41.744	1.00	29.21
	ATOM	2532	CE2	PHE A 331	0	3.975	42.753	41.181	1.00	30.61
	ATOM	2533	CZ	PHE A 331	0	3.348	43.965	41.453	1.00	30.66
35	ATOM	2534	N	GLN A 332	0	-1.873	39.446	42.676	1.00	25.58
	ATOM	2535	CA	GLN A 332	0	-3.085	38.628	42.608	1.00	26.60
	ATOM	2536	C	GLN A 332	0	-3.672	38.698	41.203	1.00	23.61
	ATOM	2537	O	GLN A 332	0	-4.136	39.739	40.755	1.00	21.73

ATOM 2538 CB GLN A 332 0 -4.110 39.094 43.630 1.00 30.32
ATOM 2539 CG GLN A 332 0 -5.412 38.299 43.642 1.00 35.72
ATOM 2540 CD GLN A 332 0 -5.199 36.961 44.325 1.00 39.98
ATOM 2541 OE1 GLN A 332 0 -5.859 35.961 44.007 1.00 42.32
5 ATOM 2542 NE2 GLN A 332 0 -4.257 36.915 45.270 1.00 42.27
ATOM 2543 N LEU A 333 0 -3.612 37.576 40.504 1.00 23.60
ATOM 2544 CA LEU A 333 0 -4.105 37.565 39.118 1.00 26.25
ATOM 2545 C LEU A 333 0 -5.627 37.373 39.123 1.00 26.55
ATOM 2546 O LEU A 333 0 -6.107 36.655 39.998 1.00 25.70
10 ATOM 2547 CB LEU A 333 0 -3.424 36.465 38.304 1.00 25.25
ATOM 2548 CG LEU A 333 0 -1.919 36.608 38.052 1.00 25.72
ATOM 2549 CD1 LEU A 333 0 -1.431 35.565 37.067 1.00 23.66
ATOM 2550 CD2 LEU A 333 0 -1.551 38.000 37.558 1.00 25.25
ATOM 2551 N GLY A 334 0 -6.327 37.976 38.188 1.00 27.85
15 ATOM 2552 CA GLY A 334 0 -7.770 37.782 38.118 1.00 29.96
ATOM 2553 C GLY A 334 0 -8.253 37.802 36.672 1.00 32.36
ATOM 2554 O GLY A 334 0 -7.559 38.175 35.719 1.00 30.74
ATOM 2555 N PHE A 335 0 -9.502 37.377 36.544 1.00 34.76
ATOM 2556 CA PHE A 335 0 -10.181 37.360 35.260 1.00 38.54
20 ATOM 2557 C PHE A 335 0 -11.625 37.806 35.514 1.00 41.05
ATOM 2558 O PHE A 335 0 -12.443 37.028 36.021 1.00 41.53
ATOM 2559 CB PHE A 335 0 -10.183 36.003 34.586 1.00 39.00
ATOM 2560 CG PHE A 335 0 -10.772 36.105 33.197 1.00 40.61
ATOM 2561 CD1 PHE A 335 0 -10.052 36.686 32.175 1.00 40.45
25 ATOM 2562 CD2 PHE A 335 0 -12.045 35.614 32.942 1.00 41.39
ATOM 2563 CE1 PHE A 335 0 -10.580 36.778 30.901 1.00 40.81
ATOM 2564 CE2 PHE A 335 0 -12.588 35.697 31.671 1.00 41.51
ATOM 2565 CZ PHE A 335 0 -11.849 36.281 30.652 1.00 41.87
ATOM 2566 N SER A 336 0 -11.861 39.075 35.193 1.00 42.39
30 ATOM 2567 CA SER A 336 0 -13.203 39.582 35.445 1.00 44.12
ATOM 2568 C SER A 336 0 -13.704 40.525 34.370 1.00 44.31
ATOM 2569 O SER A 336 0 -13.028 41.440 33.903 1.00 44.49
ATOM 2570 CB SER A 336 0 -13.214 40.206 36.842 1.00 45.46
ATOM 2571 OG SER A 336 0 -13.727 39.233 37.758 1.00 47.11
35 ATOM 2572 N GLY A 337 0 -14.963 40.267 33.983 1.00 44.12
ATOM 2573 CA GLY A 337 0 -15.630 41.067 32.959 1.00 41.89
ATOM 2574 C GLY A 337 0 -14.963 40.920 31.608 1.00 40.08
ATOM 2575 O GLY A 337 0 -14.712 41.891 30.888 1.00 41.35

ATOM 2576 N GLY A 338 0 -14.583 39.699 31.263 1.00 39.12
ATOM 2577 CA GLY A 338 0 -13.899 39.364 30.034 1.00 36.11
ATOM 2578 C GLY A 338 0 -12.503 39.970 29.929 1.00 34.97
ATOM 2579 O GLY A 338 0 -12.005 40.116 28.806 1.00 33.64
5 ATOM 2580 N ARG A 339 0 -11.885 40.355 31.048 1.00 33.21
ATOM 2581 CA ARG A 339 0 -10.538 40.916 30.982 1.00 32.04
ATOM 2582 C ARG A 339 0 -9.724 40.397 32.164 1.00 29.23
ATOM 2583 O ARG A 339 0 -10.260 40.053 33.210 1.00 26.38
ATOM 2584 CB ARG A 339 0 -10.495 42.419 30.845 1.00 36.52
10 ATOM 2585 CG ARG A 339 0 -11.291 43.281 31.790 1.00 42.08
ATOM 2586 CD ARG A 339 0 -11.895 44.502 31.127 1.00 45.03
ATOM 2587 NE ARG A 339 0 -11.046 45.380 30.351 1.00 47.77
ATOM 2588 CZ ARG A 339 0 -10.635 46.616 30.664 1.00 49.55
ATOM 2589 NH1 ARG A 339 0 -10.935 47.242 31.799 1.00 49.60
15 ATOM 2590 NH2 ARG A 339 0 -9.862 47.295 29.805 1.00 49.96
ATOM 2591 N PHE A 340 0 -8.425 40.181 31.900 1.00 25.50
ATOM 2592 CA PHE A 340 0 -7.526 39.713 32.938 1.00 22.68
ATOM 2593 C PHE A 340 0 -7.171 40.945 33.774 1.00 22.15
ATOM 2594 O PHE A 340 0 -7.069 42.069 33.266 1.00 21.26
20 ATOM 2595 CB PHE A 340 0 -6.210 39.135 32.397 1.00 22.39
ATOM 2596 CG PHE A 340 0 -6.333 37.792 31.736 1.00 20.74
ATOM 2597 CD1 PHE A 340 0 -6.338 37.710 30.357 1.00 20.97
ATOM 2598 CD2 PHE A 340 0 -6.448 36.644 32.468 1.00 21.19
ATOM 2599 CE1 PHE A 340 0 -6.449 36.488 29.721 1.00 21.61
25 ATOM 2600 CE2 PHE A 340 0 -6.585 35.408 31.826 1.00 22.99
ATOM 2601 CZ PHE A 340 0 -6.578 35.334 30.444 1.00 19.90
ATOM 2602 N THR A 341 0 -7.000 40.736 35.069 1.00 20.76
ATOM 2603 CA THR A 341 0 -6.605 41.879 35.889 1.00 21.55
ATOM 2604 C THR A 341 0 -5.400 41.509 36.759 1.00 21.00
30 ATOM 2605 O THR A 341 0 -5.236 40.329 37.089 1.00 20.70
ATOM 2606 CB THR A 341 0 -7.757 42.255 36.853 1.00 21.12
ATOM 2607 OG1 THR A 341 0 -8.014 41.102 37.668 1.00 21.26
ATOM 2608 CG2 THR A 341 0 -9.050 42.630 36.150 1.00 21.74
ATOM 2609 N ILE A 342 0 -4.750 42.529 37.308 1.00 20.28
35 ATOM 2610 CA ILE A 342 0 -3.739 42.273 38.333 1.00 20.34
ATOM 2611 C ILE A 342 0 -4.026 43.212 39.496 1.00 18.92
ATOM 2612 O ILE A 342 0 -4.004 44.437 39.327 1.00 16.42
ATOM 2613 CB ILE A 342 0 -2.306 42.439 37.820 1.00 21.04

ATOM 2614 CG1 ILE A 342 O -1.337 42.721 38.988 1.00 21.39
ATOM 2615 CG2 ILE A 342 O -2.250 43.540 36.800 1.00 24.57
ATOM 2616 CD1 ILE A 342 O -0.260 41.661 38.949 1.00 24.53
ATOM 2617 N ASN A 343 O -4.282 42.601 40.650 1.00 17.77
5 ATOM 2618 CA ASN A 343 O -4.702 43.413 41.782 1.00 21.51
ATOM 2619 C ASN A 343 O -5.881 44.287 41.394 1.00 21.43
ATOM 2620 O ASN A 343 O -5.903 45.495 41.598 1.00 20.26
ATOM 2621 CB ASN A 343 O -3.513 44.231 42.356 1.00 22.34
ATOM 2622 CG ASN A 343 O -2.685 43.190 43.073 1.00 25.38
10 ATOM 2623 OD1 ASN A 343 O -2.075 42.218 42.598 1.00 26.90
ATOM 2624 ND2 ASN A 343 O -2.652 43.238 44.425 1.00 25.34
ATOM 2625 N GLY A 344 O -6.875 43.703 40.730 1.00 23.77
ATOM 2626 CA GLY A 344 O -8.078 44.406 40.324 1.00 25.28
ATOM 2627 C GLY A 344 O -7.954 45.280 39.111 1.00 26.82
15 ATOM 2628 O GLY A 344 O -9.029 45.728 38.672 1.00 29.56
ATOM 2629 N THR A 345 O -6.798 45.561 38.527 1.00 26.28
ATOM 2630 CA THR A 345 O -6.766 46.440 37.366 1.00 25.48
ATOM 2631 C THR A 345 O -6.343 45.703 36.109 1.00 26.49
ATOM 2632 O THR A 345 O -5.385 44.925 36.122 1.00 28.22
20 ATOM 2633 CB THR A 345 O -5.829 47.648 37.589 1.00 26.17
ATOM 2634 OG1 THR A 345 O -6.191 48.334 38.788 1.00 25.32
ATOM 2635 CG2 THR A 345 O -5.867 48.677 36.462 1.00 24.83
ATOM 2636 N ALA A 346 O -7.017 46.012 35.008 1.00 24.80
ATOM 2637 CA ALA A 346 O -6.768 45.491 33.688 1.00 23.82
25 ATOM 2638 C ALA A 346 O -5.862 46.511 32.997 1.00 23.77
ATOM 2639 O ALA A 346 O -6.098 47.711 33.088 1.00 22.93
ATOM 2640 CB ALA A 346 O -8.031 45.353 32.841 1.00 24.13
ATOM 2641 N TYR A 347 O -4.793 46.023 32.392 1.00 22.69
ATOM 2642 CA TYR A 347 O -3.862 46.949 31.792 1.00 22.75
30 ATOM 2643 C TYR A 347 O -4.483 47.532 30.527 1.00 23.42
ATOM 2644 O TYR A 347 O -4.954 46.753 29.709 1.00 22.19
ATOM 2645 CB TYR A 347 O -2.521 46.274 31.455 1.00 21.25
ATOM 2646 CG TYR A 347 O -1.584 47.221 30.732 1.00 18.93
ATOM 2647 CD1 TYR A 347 O -0.819 48.137 31.442 1.00 18.17
35 ATOM 2648 CD2 TYR A 347 O -1.473 47.176 29.353 1.00 19.30
ATOM 2649 CE1 TYR A 347 O 0.034 49.003 30.763 1.00 18.37
ATOM 2650 CE2 TYR A 347 O -0.650 48.063 28.664 1.00 18.40
ATOM 2651 CZ TYR A 347 O 0.102 48.962 29.394 1.00 18.99

ATOM 2652 OH TYR A 347 O 0.947 49.802 28.706 1.00 19.65
ATOM 2653 N GLU A 348 O -4.378 48.833 30.359 1.00 25.22
ATOM 2654 CA GLU A 348 O -4.769 49.453 29.098 1.00 28.77
ATOM 2655 C GLU A 348 O -3.659 50.470 28.805 1.00 27.38
5 ATOM 2656 O GLU A 348 O -3.297 51.229 29.704 1.00 28.49
ATOM 2657 CB GLU A 348 O -6.114 50.134 29.110 1.00 32.95
ATOM 2658 CG GLU A 348 O -7.391 49.302 29.072 1.00 39.29
ATOM 2659 CD GLU A 348 O -8.562 50.170 29.559 1.00 43.20
ATOM 2660 OE1 GLU A 348 O -8.825 51.211 28.900 1.00 45.31
10 ATOM 2661 OE2 GLU A 348 O -9.175 49.855 30.601 1.00 44.11
ATOM 2662 N SER A 349 O -3.168 50.541 27.621 1.00 25.73
ATOM 2663 CA SER A 349 O -2.080 51.410 27.201 1.00 28.25
ATOM 2664 C SER A 349 O -2.401 52.887 27.194 1.00 28.71
ATOM 2665 O SER A 349 O -3.279 53.399 26.526 1.00 29.13
15 ATOM 2666 CB SER A 349 O -1.743 50.818 25.838 1.00 28.54
ATOM 2667 OG SER A 349 O -0.850 51.499 25.026 1.00 33.31
ATOM 2668 N PRO A 350 O -1.623 53.700 27.898 1.00 29.56
ATOM 2669 CA PRO A 350 O -1.770 55.145 27.997 1.00 28.53
ATOM 2670 C PRO A 350 O -1.480 55.825 26.679 1.00 28.01
20 ATOM 2671 O PRO A 350 O -0.787 55.217 25.856 1.00 26.93
ATOM 2672 CB PRO A 350 O -0.752 55.632 29.063 1.00 27.91
ATOM 2673 CG PRO A 350 O 0.309 54.560 28.863 1.00 28.03
ATOM 2674 CD PRO A 350 O -0.461 53.245 28.688 1.00 28.76
ATOM 2675 N SER A 351 O -1.951 57.066 26.485 1.00 28.89
25 ATOM 2676 CA SER A 351 O -1.630 57.718 25.206 1.00 29.67
ATOM 2677 C SER A 351 O -0.213 58.287 25.257 1.00 27.67
ATOM 2678 O SER A 351 O 0.320 58.524 24.177 1.00 28.18
ATOM 2679 CB SER A 351 O -2.566 58.860 24.790 1.00 31.71
ATOM 2680 OG SER A 351 O -2.793 59.679 25.938 1.00 34.19
30 ATOM 2681 N VAL A 352 O 0.316 58.529 26.449 1.00 25.32
ATOM 2682 CA VAL A 352 O 1.703 58.997 26.534 1.00 25.27
ATOM 2683 C VAL A 352 O 2.503 57.872 27.211 1.00 23.63
ATOM 2684 O VAL A 352 O 2.181 57.493 28.323 1.00 23.26
ATOM 2685 CB VAL A 352 O 1.934 60.300 27.303 1.00 24.91
35 ATOM 2686 CG1 VAL A 352 O 1.129 61.436 26.658 1.00 24.41
ATOM 2687 CG2 VAL A 352 O 3.424 60.635 27.281 1.00 23.35
ATOM 2688 N PRO A 353 O 3.498 57.375 26.510 1.00 22.39
ATOM 2689 CA PRO A 353 O 4.342 56.300 26.983 1.00 21.86

ATOM 2690 C PRO A 353 0 4.978 56.699 28.300 1.00 20.91
ATOM 2691 O PRO A 353 0 5.393 57.852 28.483 1.00 21.91
ATOM 2692 CB PRO A 353 0 5.417 56.054 25.916 1.00 23.95
ATOM 2693 CG PRO A 353 0 5.181 57.123 24.878 1.00 23.79
5 ATOM 2694 CD PRO A 353 0 3.882 57.848 25.180 1.00 23.03
ATOM 2695 N THR A 354 0 5.043 55.778 29.234 1.00 18.66
ATOM 2696 CA THR A 354 0 5.646 56.015 30.530 1.00 18.05
ATOM 2697 C THR A 354 0 6.981 56.739 30.478 1.00 18.33
ATOM 2698 O THR A 354 0 7.168 57.630 31.319 1.00 19.46
10 ATOM 2699 CB THR A 354 0 5.871 54.661 31.242 1.00 17.10
ATOM 2700 OG1 THR A 354 0 4.903 53.710 30.797 1.00 17.24
ATOM 2701 CG2 THR A 354 0 5.772 54.852 32.741 1.00 16.43
ATOM 2702 N LEU A 355 0 7.940 56.380 29.618 1.00 17.49
ATOM 2703 CA LEU A 355 0 9.215 57.076 29.604 1.00 18.84
15 ATOM 2704 C LEU A 355 0 9.013 58.579 29.284 1.00 19.80
ATOM 2705 O LEU A 355 0 9.722 59.417 29.849 1.00 17.13
ATOM 2706 CB LEU A 355 0 10.200 56.498 28.622 1.00 17.89
ATOM 2707 CG LEU A 355 0 11.703 56.488 28.819 1.00 18.66
ATOM 2708 CD1 LEU A 355 0 12.436 56.851 27.547 1.00 18.37
20 ATOM 2709 CD2 LEU A 355 0 12.199 57.204 30.056 1.00 16.79
ATOM 2710 N LEU A 356 0 8.134 58.883 28.328 1.00 20.48
ATOM 2711 CA LEU A 356 0 7.812 60.274 27.993 1.00 21.62
ATOM 2712 C LEU A 356 0 7.085 60.932 29.163 1.00 21.28
ATOM 2713 O LEU A 356 0 7.497 62.042 29.506 1.00 22.01
25 ATOM 2714 CB LEU A 356 0 7.028 60.474 26.700 1.00 22.08
ATOM 2715 CG LEU A 356 0 6.850 61.939 26.239 1.00 23.98
ATOM 2716 CD1 LEU A 356 0 8.157 62.709 26.207 1.00 23.11
ATOM 2717 CD2 LEU A 356 0 6.191 61.985 24.864 1.00 24.74
ATOM 2718 N GLN A 357 0 6.219 60.267 29.922 1.00 21.37
30 ATOM 2719 CA GLN A 357 0 5.669 60.893 31.120 1.00 21.87
ATOM 2720 C GLN A 357 0 6.759 61.254 32.128 1.00 24.12
ATOM 2721 O GLN A 357 0 6.674 62.277 32.811 1.00 24.92
ATOM 2722 CB GLN A 357 0 4.636 60.015 31.822 1.00 20.63
ATOM 2723 CG GLN A 357 0 3.447 59.674 30.906 1.00 19.17
35 ATOM 2724 CD GLN A 357 0 2.547 58.643 31.540 1.00 18.85
ATOM 2725 OE1 GLN A 357 0 2.162 58.748 32.713 1.00 19.06
ATOM 2726 NE2 GLN A 357 0 2.262 57.600 30.742 1.00 18.49
ATOM 2727 N ILE A 358 0 7.735 60.371 32.346 1.00 25.66

ATOM 2728 CA ILE A 358 O 8.822 60.651 33.263 1.00 26.19
ATOM 2729 C ILE A 358 O 9.699 61.800 32.762 1.00 27.66
ATOM 2730 O ILE A 358 O 9.940 62.725 33.551 1.00 26.65
ATOM 2731 CB ILE A 358 O 9.692 59.420 33.578 1.00 24.79
5 ATOM 2732 CG1 ILE A 358 O 8.807 58.395 34.304 1.00 24.09
ATOM 2733 CG2 ILE A 358 O 10.865 59.841 34.451 1.00 23.78
ATOM 2734 CD1 ILE A 358 O 9.251 56.954 34.234 1.00 23.34
ATOM 2735 N MET A 359 O 10.054 61.844 31.486 1.00 29.63
ATOM 2736 CA MET A 359 O 10.893 62.910 30.965 1.00 33.02
10 ATOM 2737 C MET A 359 O 10.174 64.260 31.027 1.00 34.46
ATOM 2738 O MET A 359 O 10.801 65.324 31.026 1.00 33.77
ATOM 2739 CB MET A 359 O 11.346 62.664 29.537 1.00 35.67
ATOM 2740 CG MET A 359 O 12.065 61.403 29.138 1.00 40.75
ATOM 2741 SD MET A 359 O 13.764 61.153 29.671 1.00 44.90
15 ATOM 2742 CE MET A 359 O 14.594 62.592 29.007 1.00 44.24
ATOM 2743 N SER A 360 O 8.835 64.238 31.070 1.00 33.43
ATOM 2744 CA SER A 360 O 8.024 65.430 31.088 1.00 32.92
ATOM 2745 C SER A 360 O 7.761 65.995 32.474 1.00 33.24
ATOM 2746 O SER A 360 O 6.989 66.966 32.556 1.00 34.08
20 ATOM 2747 CB SER A 360 O 6.678 65.134 30.393 1.00 31.34
ATOM 2748 OG SER A 360 O 6.928 65.109 28.996 1.00 31.06
ATOM 2749 N GLY A 361 O 8.288 65.360 33.517 1.00 32.06
ATOM 2750 CA GLY A 361 O 8.072 65.868 34.847 1.00 31.80
ATOM 2751 C GLY A 361 O 7.487 64.955 35.880 1.00 32.48
25 ATOM 2752 O GLY A 361 O 7.420 65.377 37.043 1.00 33.20
ATOM 2753 N ALA A 362 O 6.991 63.769 35.535 1.00 33.69
ATOM 2754 CA ALA A 362 O 6.406 62.926 36.601 1.00 35.10
ATOM 2755 C ALA A 362 O 7.475 62.615 37.650 1.00 34.45
ATOM 2756 O ALA A 362 O 8.598 62.306 37.286 1.00 33.60
30 ATOM 2757 CB ALA A 362 O 5.789 61.658 36.043 1.00 34.88
ATOM 2758 N GLN A 363 O 7.146 62.676 38.920 1.00 36.22
ATOM 2759 CA GLN A 363 O 8.083 62.458 40.007 1.00 37.87
ATOM 2760 C GLN A 363 O 7.776 61.189 40.787 1.00 37.20
ATOM 2761 O GLN A 363 O 8.620 60.777 41.587 1.00 36.79
35 ATOM 2762 CB GLN A 363 O 8.012 63.619 41.022 1.00 40.41
ATOM 2763 CG GLN A 363 O 8.986 64.740 40.721 1.00 44.07
ATOM 2764 CD GLN A 363 O 8.586 66.154 41.092 1.00 45.77
ATOM 2765 OE1 GLN A 363 O 7.697 66.473 41.901 1.00 46.53

ATOM 2766 NE2 GLN A 363 O 9.294 67.089 40.435 1.00 46.12
ATOM 2767 N SER A 364 O 6.579 60.632 40.610 1.00 35.74
ATOM 2768 CA SER A 364 O 6.249 59.434 41.381 1.00 34.54
ATOM 2769 C SER A 364 O 5.225 58.588 40.653 1.00 34.32
5 ATOM 2770 O SER A 364 O 4.605 59.037 39.692 1.00 33.71
ATOM 2771 CB SER A 364 O 5.774 59.835 42.769 1.00 35.68
ATOM 2772 OG SER A 364 O 4.396 60.095 42.928 1.00 35.86
ATOM 2773 N ALA A 365 O 5.015 57.372 41.146 1.00 33.95
ATOM 2774 CA ALA A 365 O 4.017 56.486 40.564 1.00 34.62
10 ATOM 2775 C ALA A 365 O 2.637 57.148 40.560 1.00 34.46
ATOM 2776 O ALA A 365 O 1.906 56.995 39.582 1.00 34.37
ATOM 2777 CB ALA A 365 O 3.963 55.155 41.301 1.00 33.51
ATOM 2778 N ASN A 366 O 2.261 57.916 41.571 1.00 34.45
ATOM 2779 CA ASN A 366 O 1.003 58.619 41.632 1.00 36.37
15 ATOM 2780 C ASN A 366 O 0.708 59.524 40.447 1.00 35.60
ATOM 2781 O ASN A 366 O -0.462 59.719 40.131 1.00 36.50
ATOM 2782 CB ASN A 366 O 0.904 59.464 42.918 1.00 38.72
ATOM 2783 CG ASN A 366 O 0.794 58.558 44.126 1.00 41.08
ATOM 2784 OD1 ASN A 366 O 0.863 58.966 45.284 1.00 43.39
20 ATOM 2785 ND2 ASN A 366 O 0.646 57.256 43.914 1.00 42.72
ATOM 2786 N ASP A 367 O 1.694 60.046 39.752 1.00 34.06
ATOM 2787 CA ASP A 367 O 1.571 60.899 38.610 1.00 33.37
ATOM 2788 C ASP A 367 O 1.566 60.122 37.293 1.00 32.09
ATOM 2789 O ASP A 367 O 1.430 60.762 36.247 1.00 31.74
25 ATOM 2790 CB ASP A 367 O 2.768 61.841 38.483 1.00 35.96
ATOM 2791 CG ASP A 367 O 3.048 62.818 39.602 1.00 37.69
ATOM 2792 OD1 ASP A 367 O 2.123 63.209 40.336 1.00 37.23
ATOM 2793 OD2 ASP A 367 O 4.258 63.194 39.705 1.00 39.62
ATOM 2794 N LEU A 368 O 1.791 58.814 37.371 1.00 30.39
30 ATOM 2795 CA LEU A 368 O 1.897 58.055 36.123 1.00 28.74
ATOM 2796 C LEU A 368 O 0.586 57.386 35.745 1.00 28.85
ATOM 2797 O LEU A 368 O -0.214 56.947 36.555 1.00 28.17
ATOM 2798 CB LEU A 368 O 3.043 57.046 36.194 1.00 26.94
ATOM 2799 CG LEU A 368 O 4.436 57.668 36.422 1.00 27.05
35 ATOM 2800 CD1 LEU A 368 O 5.455 56.581 36.765 1.00 25.41
ATOM 2801 CD2 LEU A 368 O 4.882 58.499 35.236 1.00 24.44
ATOM 2802 N LEU A 369 O 0.392 57.332 34.446 1.00 28.81
ATOM 2803 CA LEU A 369 O -0.753 56.671 33.834 1.00 29.65

ATOM 2804 C LEU A 369 0 -0.238 55.398 33.162 1.00 28.29
ATOM 2805 O LEU A 369 0 0.875 55.356 32.660 1.00 25.59
ATOM 2806 CB LEU A 369 0 -1.333 57.668 32.821 1.00 30.27
ATOM 2807 CG LEU A 369 0 -1.800 58.998 33.456 1.00 32.06
5 ATOM 2808 CD1 LEU A 369 0 -2.220 59.979 32.370 1.00 31.87
ATOM 2809 CD2 LEU A 369 0 -2.932 58.787 34.455 1.00 30.89
ATOM 2810 N PRO A 370 0 -1.054 54.361 33.157 1.00 27.87
ATOM 2811 CA PRO A 370 0 -2.396 54.379 33.688 1.00 26.71
ATOM 2812 C PRO A 370 0 -2.513 54.112 35.169 1.00 26.73
10 ATOM 2813 O PRO A 370 0 -1.872 53.184 35.668 1.00 26.55
ATOM 2814 CB PRO A 370 0 -3.126 53.222 32.958 1.00 27.28
ATOM 2815 CG PRO A 370 0 -2.003 52.317 32.557 1.00 27.38
ATOM 2816 CD PRO A 370 0 -0.720 53.102 32.482 1.00 27.24
ATOM 2817 N ALA A 371 0 -3.414 54.810 35.870 1.00 26.16
15 ATOM 2818 CA ALA A 371 0 -3.581 54.556 37.302 1.00 25.73
ATOM 2819 C ALA A 371 0 -3.892 53.103 37.616 1.00 24.59
ATOM 2820 O ALA A 371 0 -4.758 52.533 36.946 1.00 25.05
ATOM 2821 CB ALA A 371 0 -4.718 55.394 37.903 1.00 26.42
ATOM 2822 N GLY A 372 0 -3.261 52.524 38.625 1.00 22.47
20 ATOM 2823 CA GLY A 372 0 -3.519 51.187 39.087 1.00 21.06
ATOM 2824 C GLY A 372 0 -2.691 50.096 38.427 1.00 23.01
ATOM 2825 O GLY A 372 0 -2.758 48.928 38.831 1.00 23.85
ATOM 2826 N SER A 373 0 -1.910 50.428 37.421 1.00 23.30
ATOM 2827 CA SER A 373 0 -1.054 49.459 36.736 1.00 24.36
25 ATOM 2828 C SER A 373 0 0.429 49.746 36.919 1.00 24.76
ATOM 2829 O SER A 373 0 1.257 49.103 36.270 1.00 25.75
ATOM 2830 CB SER A 373 0 -1.371 49.584 35.233 1.00 23.25
ATOM 2831 OG SER A 373 0 -2.638 49.014 34.952 1.00 23.80
ATOM 2832 N VAL A 374 0 0.779 50.799 37.657 1.00 23.87
30 ATOM 2833 CA VAL A 374 0 2.176 51.255 37.706 1.00 22.95
ATOM 2834 C VAL A 374 0 2.739 51.109 39.105 1.00 21.72
ATOM 2835 O VAL A 374 0 2.093 51.518 40.059 1.00 21.03
ATOM 2836 CB VAL A 374 0 2.317 52.687 37.169 1.00 23.05
ATOM 2837 CG1 VAL A 374 0 3.720 53.273 37.323 1.00 24.13
35 ATOM 2838 CG2 VAL A 374 0 1.945 52.771 35.698 1.00 21.58
ATOM 2839 N TYR A 375 0 3.862 50.402 39.246 1.00 20.52
ATOM 2840 CA TYR A 375 0 4.445 50.184 40.573 1.00 22.02
ATOM 2841 C TYR A 375 0 5.873 50.743 40.549 1.00 22.56

ATOM 2842 O TYR A 375 0 6.665 50.524 39.639 1.00 21.82
ATOM 2843 CB TYR A 375 0 4.467 48.729 41.067 1.00 21.98
ATOM 2844 CG TYR A 375 0 3.042 48.217 41.226 1.00 24.04
ATOM 2845 CD1 TYR A 375 0 2.398 48.261 42.445 1.00 23.57
5 ATOM 2846 CD2 TYR A 375 0 2.339 47.760 40.115 1.00 24.92
ATOM 2847 CE1 TYR A 375 0 1.100 47.831 42.575 1.00 25.65
ATOM 2848 CE2 TYR A 375 0 1.034 47.327 40.220 1.00 25.89
ATOM 2849 CZ TYR A 375 0 0.429 47.352 41.464 1.00 26.65
ATOM 2850 OH TYR A 375 0 -0.869 46.916 41.593 1.00 27.26
10 ATOM 2851 N GLU A 376 0 6.130 51.563 41.546 1.00 22.36
ATOM 2852 CA GLU A 376 0 7.403 52.214 41.718 1.00 23.62
ATOM 2853 C GLU A 376 0 8.411 51.289 42.387 1.00 22.40
ATOM 2854 O GLU A 376 0 8.062 50.578 43.324 1.00 21.88
ATOM 2855 CB GLU A 376 0 7.211 53.465 42.614 1.00 25.13
15 ATOM 2856 CG GLU A 376 0 8.500 54.255 42.720 1.00 27.91
ATOM 2857 CD GLU A 376 0 8.376 55.725 43.046 1.00 29.20
ATOM 2858 OE1 GLU A 376 0 7.247 56.268 43.109 1.00 30.01
ATOM 2859 OE2 GLU A 376 0 9.458 56.336 43.219 1.00 28.05
ATOM 2860 N LEU A 377 0 9.669 51.353 41.954 1.00 21.23
20 ATOM 2861 CA LEU A 377 0 10.705 50.535 42.626 1.00 19.95
ATOM 2862 C LEU A 377 0 11.838 51.478 42.982 1.00 20.30
ATOM 2863 O LEU A 377 0 12.220 52.350 42.197 1.00 20.12
ATOM 2864 CB LEU A 377 0 11.129 49.419 41.692 1.00 20.77
ATOM 2865 CG LEU A 377 0 10.668 47.964 41.818 1.00 20.49
25 ATOM 2866 CD1 LEU A 377 0 9.439 47.739 42.629 1.00 17.77
ATOM 2867 CD2 LEU A 377 0 10.617 47.242 40.483 1.00 19.28
ATOM 2868 N PRO A 378 0 12.407 51.334 44.162 1.00 19.69
ATOM 2869 CA PRO A 378 0 13.523 52.117 44.631 1.00 19.91
ATOM 2870 C PRO A 378 0 14.797 51.650 43.937 1.00 19.81
30 ATOM 2871 O PRO A 378 0 14.795 50.645 43.241 1.00 17.74
ATOM 2872 CB PRO A 378 0 13.611 51.893 46.157 1.00 20.21
ATOM 2873 CG PRO A 378 0 12.957 50.546 46.291 1.00 20.73
ATOM 2874 CD PRO A 378 0 12.050 50.292 45.114 1.00 19.74
ATOM 2875 N ARG A 379 0 15.877 52.410 44.059 1.00 19.68
35 ATOM 2876 CA ARG A 379 0 17.172 52.135 43.449 1.00 18.58
ATOM 2877 C ARG A 379 0 18.027 51.129 44.193 1.00 18.68
ATOM 2878 O ARG A 379 0 18.151 51.126 45.432 1.00 17.60
ATOM 2879 CB ARG A 379 0 17.946 53.487 43.431 1.00 18.33

ATOM 2880 CG ARG A 379 O 19.406 53.348 43.030 1.00 19.33
ATOM 2881 CD ARG A 379 O 20.026 54.710 42.729 1.00 19.06
ATOM 2882 NE ARG A 379 O 21.413 54.561 42.295 1.00 16.65
ATOM 2883 CZ ARG A 379 O 21.794 54.681 41.031 1.00 15.60
5 ATOM 2884 NH1 ARG A 379 O 20.964 54.904 40.038 1.00 14.29
ATOM 2885 NH2 ARG A 379 O 23.096 54.505 40.783 1.00 17.29
ATOM 2886 N ASN A 380 O 18.701 50.263 43.441 1.00 20.11
ATOM 2887 CA ASN A 380 O 19.658 49.328 44.011 1.00 21.97
ATOM 2888 C ASN A 380 O 19.129 48.604 45.227 1.00 22.44
10 ATOM 2889 O ASN A 380 O 19.712 48.630 46.317 1.00 22.53
ATOM 2890 CB ASN A 380 O 20.995 50.045 44.345 1.00 23.30
ATOM 2891 CG ASN A 380 O 21.860 50.231 43.107 1.00 25.83
ATOM 2892 OD1 ASN A 380 O 22.636 51.186 42.877 1.00 27.14
ATOM 2893 ND2 ASN A 380 O 21.767 49.271 42.185 1.00 24.91
15 ATOM 2894 N GLN A 381 O 17.974 47.936 45.097 1.00 21.39
ATOM 2895 CA GLN A 381 O 17.468 47.162 46.220 1.00 20.88
ATOM 2896 C GLN A 381 O 17.169 45.760 45.679 1.00 19.96
ATOM 2897 O GLN A 381 O 17.000 45.635 44.471 1.00 19.90
ATOM 2898 CB GLN A 381 O 16.219 47.722 46.871 1.00 22.84
20 ATOM 2899 CG GLN A 381 O 16.326 49.172 47.318 1.00 27.28
ATOM 2900 CD GLN A 381 O 16.065 49.297 48.792 1.00 30.24
ATOM 2901 OE1 GLN A 381 O 15.067 49.917 49.171 1.00 34.48
ATOM 2902 NE2 GLN A 381 O 16.929 48.742 49.611 1.00 30.80
ATOM 2903 N VAL A 382 O 17.046 44.825 46.594 1.00 18.67
25 ATOM 2904 CA VAL A 382 O 16.665 43.472 46.248 1.00 18.98
ATOM 2905 C VAL A 382 O 15.139 43.327 46.212 1.00 19.75
ATOM 2906 O VAL A 382 O 14.443 43.550 47.225 1.00 18.76
ATOM 2907 CB VAL A 382 O 17.252 42.491 47.278 1.00 19.03
ATOM 2908 CG1 VAL A 382 O 16.811 41.065 46.960 1.00 18.87
30 ATOM 2909 CG2 VAL A 382 O 18.779 42.637 47.344 1.00 17.54
ATOM 2910 N VAL A 383 O 14.601 42.954 45.046 1.00 17.58
ATOM 2911 CA VAL A 383 O 13.151 42.715 45.037 1.00 17.76
ATOM 2912 C VAL A 383 O 12.777 41.254 44.883 1.00 17.50
ATOM 2913 O VAL A 383 O 13.348 40.472 44.153 1.00 16.42
35 ATOM 2914 CB VAL A 383 O 12.306 43.626 44.145 1.00 17.69
ATOM 2915 CG1 VAL A 383 O 13.111 44.759 43.585 1.00 15.33
ATOM 2916 CG2 VAL A 383 O 11.400 43.009 43.126 1.00 17.79
ATOM 2917 N GLU A 384 O 11.743 40.861 45.638 1.00 18.47

	ATOM	2918	CA	GLU A 384	0	11.173	39.529	45.542	1.00	18.27
	ATOM	2919	C	GLU A 384	0	9.711	39.683	45.096	1.00	18.94
	ATOM	2920	O	GLU A 384	0	8.956	40.311	45.816	1.00	19.06
	ATOM	2921	CB	GLU A 384	0	11.253	38.764	46.852	1.00	17.12
5	ATOM	2922	CG	GLU A 384	0	10.717	37.345	46.738	1.00	17.52
	ATOM	2923	CD	GLU A 384	0	10.979	36.551	47.998	1.00	19.10
	ATOM	2924	OE1	GLU A 384	0	12.101	36.050	48.218	1.00	20.69
	ATOM	2925	OE2	GLU A 384	0	10.018	36.405	48.773	1.00	21.22
	ATOM	2926	N	LEU A 385	0	9.326	39.182	43.948	1.00	19.78
10	ATOM	2927	CA	LEU A 385	0	7.966	39.153	43.463	1.00	21.07
	ATOM	2928	C	LEU A 385	0	7.391	37.738	43.591	1.00	20.91
	ATOM	2929	O	LEU A 385	0	8.043	36.790	43.113	1.00	21.40
	ATOM	2930	CB	LEU A 385	0	7.881	39.466	41.959	1.00	20.92
	ATOM	2931	CG	LEU A 385	0	8.393	40.795	41.457	1.00	23.75
15	ATOM	2932	CD1	LEU A 385	0	8.118	40.984	39.962	1.00	23.01
	ATOM	2933	CD2	LEU A 385	0	7.827	41.977	42.244	1.00	22.40
	ATOM	2934	N	VAL A 386	0	6.182	37.574	44.099	1.00	20.91
	ATOM	2935	CA	VAL A 386	0	5.510	36.274	44.189	1.00	19.03
	ATOM	2936	C	VAL A 386	0	4.228	36.334	43.356	1.00	21.11
20	ATOM	2937	O	VAL A 386	0	3.465	37.326	43.516	1.00	20.56
	ATOM	2938	CB	VAL A 386	0	5.159	35.967	45.654	1.00	20.91
	ATOM	2939	CG1	VAL A 386	0	4.518	34.575	45.739	1.00	20.40
	ATOM	2940	CG2	VAL A 386	0	6.321	36.044	46.625	1.00	19.89
	ATOM	2941	N	VAL A 387	0	4.011	35.469	42.358	1.00	20.02
25	ATOM	2942	CA	VAL A 387	0	2.817	35.515	41.491	1.00	20.83
	ATOM	2943	C	VAL A 387	0	2.119	34.152	41.385	1.00	21.15
	ATOM	2944	O	VAL A 387	0	2.369	33.285	40.528	1.00	19.97
	ATOM	2945	CB	VAL A 387	0	3.163	36.076	40.104	1.00	20.91
	ATOM	2946	CG1	VAL A 387	0	1.917	36.472	39.297	1.00	22.49
30	ATOM	2947	CG2	VAL A 387	0	3.959	37.393	40.171	1.00	22.24
	ATOM	2948	N	PRO A 388	0	1.262	33.832	42.358	1.00	20.55
	ATOM	2949	CA	PRO A 388	0	0.570	32.548	42.483	1.00	20.93
	ATOM	2950	C	PRO A 388	0	-0.271	32.226	41.264	1.00	20.76
	ATOM	2951	O	PRO A 388	0	-0.928	33.118	40.715	1.00	19.53
35	ATOM	2952	CB	PRO A 388	0	-0.310	32.559	43.757	1.00	20.54
	ATOM	2953	CG	PRO A 388	0	0.280	33.766	44.482	1.00	21.86
	ATOM	2954	CD	PRO A 388	0	0.841	34.707	43.438	1.00	20.83
	ATOM	2955	N	ALA A 389	0	-0.160	30.986	40.807	1.00	21.68

ATOM 2956 CA ALA A 389 0 -0.983 30.617 39.640 1.00 24.20
ATOM 2957 C ALA A 389 0 -2.394 30.320 40.148 1.00 25.02
ATOM 2958 O ALA A 389 0 -2.619 30.162 41.350 1.00 24.19
ATOM 2959 CB ALA A 389 0 -0.383 29.403 38.968 1.00 23.67
5 ATOM 2960 N GLY A 390 0 -3.309 30.143 39.222 1.00 28.43
ATOM 2961 CA GLY A 390 0 -4.713 29.811 39.539 1.00 28.47
ATOM 2962 C GLY A 390 0 -5.624 30.325 38.431 1.00 28.63
ATOM 2963 O GLY A 390 0 -6.512 29.630 37.937 1.00 31.26
ATOM 2964 N VAL A 391 0 -5.402 31.531 37.961 1.00 27.11
10 ATOM 2965 CA VAL A 391 0 -6.234 32.164 36.962 1.00 26.51
ATOM 2966 C VAL A 391 0 -6.246 31.377 35.666 1.00 29.59
ATOM 2967 O VAL A 391 0 -5.274 30.775 35.181 1.00 30.61
ATOM 2968 CB VAL A 391 0 -5.835 33.634 36.788 1.00 25.83
ATOM 2969 CG1 VAL A 391 0 -4.584 33.787 35.937 1.00 24.18
15 ATOM 2970 CG2 VAL A 391 0 -7.017 34.419 36.219 1.00 24.11
ATOM 2971 N LEU A 392 0 -7.439 31.392 35.058 1.00 30.83
ATOM 2972 CA LEU A 392 0 -7.705 30.604 33.867 1.00 30.29
ATOM 2973 C LEU A 392 0 -6.809 31.004 32.710 1.00 27.38
ATOM 2974 O LEU A 392 0 -6.316 32.113 32.665 1.00 24.62
20 ATOM 2975 CB LEU A 392 0 -9.173 30.726 33.436 1.00 32.58
ATOM 2976 CG LEU A 392 0 -9.711 32.126 33.189 1.00 33.97
ATOM 2977 CD1 LEU A 392 0 -9.411 32.626 31.786 1.00 34.78
ATOM 2978 CD2 LEU A 392 0 -11.225 32.122 33.463 1.00 36.03
ATOM 2979 N GLY A 393 0 -6.725 30.074 31.754 1.00 26.24
25 ATOM 2980 CA GLY A 393 0 -5.936 30.302 30.554 1.00 25.54
ATOM 2981 C GLY A 393 0 -4.458 29.994 30.710 1.00 25.81
ATOM 2982 O GLY A 393 0 -3.686 30.361 29.820 1.00 26.67
ATOM 2983 N GLY A 394 0 -4.033 29.379 31.803 1.00 25.84
ATOM 2984 CA GLY A 394 0 -2.615 29.112 32.035 1.00 25.94
30 ATOM 2985 C GLY A 394 0 -2.140 27.844 31.348 1.00 26.00
ATOM 2986 O GLY A 394 0 -2.884 27.193 30.625 1.00 25.18
ATOM 2987 N PRO A 395 0 -0.860 27.527 31.517 1.00 24.26
ATOM 2988 CA PRO A 395 0 0.051 28.258 32.364 1.00 21.79
ATOM 2989 C PRO A 395 0 0.517 29.518 31.660 1.00 19.29
35 ATOM 2990 O PRO A 395 0 0.704 29.597 30.445 1.00 17.41
ATOM 2991 CB PRO A 395 0 1.159 27.279 32.794 1.00 22.52
ATOM 2992 CG PRO A 395 0 1.062 26.223 31.758 1.00 24.35
ATOM 2993 CD PRO A 395 0 -0.241 26.312 30.973 1.00 24.87

ATOM 2994 N HIS A 396 O 0.586 30.591 32.451 1.00 16.97
ATOM 2995 CA HIS A 396 O 0.970 31.917 31.980 1.00 15.05
ATOM 2996 C HIS A 396 O 2.477 32.137 32.186 1.00 15.41
ATOM 2997 O HIS A 396 O 3.039 32.025 33.275 1.00 14.21
5 ATOM 2998 CB HIS A 396 O 0.288 32.989 32.842 1.00 15.40
ATOM 2999 CG HIS A 396 O -1.224 32.924 32.737 1.00 18.23
ATOM 3000 ND1 HIS A 396 O -1.942 33.504 31.702 1.00 16.23
ATOM 3001 CD2 HIS A 396 O -2.109 32.319 33.557 1.00 17.00
ATOM 3002 CE1 HIS A 396 O -3.218 33.262 31.906 1.00 18.22
10 ATOM 3003 NE2 HIS A 396 O -3.343 32.526 33.014 1.00 19.08
ATOM 3004 N PRO A 397 O 3.143 32.403 31.090 1.00 14.69
ATOM 3005 CA PRO A 397 O 4.593 32.617 31.080 1.00 16.91
ATOM 3006 C PRO A 397 O 4.818 34.129 31.202 1.00 17.59
ATOM 3007 O PRO A 397 O 4.524 34.843 30.235 1.00 17.59
15 ATOM 3008 CB PRO A 397 O 5.076 32.040 29.757 1.00 16.63
ATOM 3009 CG PRO A 397 O 3.785 31.844 28.978 1.00 17.83
ATOM 3010 CD PRO A 397 O 2.620 32.464 29.736 1.00 14.36
ATOM 3011 N PHE A 398 O 5.242 34.590 32.377 1.00 16.39
ATOM 3012 CA PHE A 398 O 5.462 36.019 32.529 1.00 15.95
20 ATOM 3013 C PHE A 398 O 6.906 36.365 32.168 1.00 15.74
ATOM 3014 O PHE A 398 O 7.846 35.619 32.444 1.00 15.78
ATOM 3015 CB PHE A 398 O 5.173 36.455 33.963 1.00 17.20
ATOM 3016 CG PHE A 398 O 3.817 37.073 34.169 1.00 19.23
ATOM 3017 CD1 PHE A 398 O 2.673 36.299 34.005 1.00 19.58
25 ATOM 3018 CD2 PHE A 398 O 3.688 38.403 34.537 1.00 19.42
ATOM 3019 CE1 PHE A 398 O 1.409 36.832 34.198 1.00 19.83
ATOM 3020 CE2 PHE A 398 O 2.405 38.933 34.709 1.00 21.46
ATOM 3021 CZ PHE A 398 O 1.260 38.162 34.539 1.00 19.65
ATOM 3022 N HIS A 399 O 7.080 37.562 31.640 1.00 14.77
30 ATOM 3023 CA HIS A 399 O 8.374 38.089 31.333 1.00 14.75
ATOM 3024 C HIS A 399 O 8.580 39.496 31.872 1.00 17.67
ATOM 3025 O HIS A 399 O 7.635 40.308 31.925 1.00 18.29
ATOM 3026 CB HIS A 399 O 8.582 37.968 29.861 1.00 14.01
ATOM 3027 CG HIS A 399 O 8.747 39.105 28.962 1.00 16.26
35 ATOM 3028 ND1 HIS A 399 O 9.957 39.511 28.446 1.00 15.35
ATOM 3029 CD2 HIS A 399 O 7.788 39.903 28.386 1.00 17.58
ATOM 3030 CE1 HIS A 399 O 9.764 40.507 27.593 1.00 15.61
ATOM 3031 NE2 HIS A 399 O 8.457 40.770 27.548 1.00 17.52

ATOM 3032 N LEU A 400 0 9.837 39.771 32.201 1.00 15.57
ATOM 3033 CA LEU A 400 0 10.220 41.061 32.745 1.00 16.93
ATOM 3034 C LEU A 400 0 11.207 41.732 31.788 1.00 16.51
ATOM 3035 O LEU A 400 0 12.268 41.175 31.510 1.00 15.77
5 ATOM 3036 CB LEU A 400 0 10.913 40.825 34.084 1.00 18.17
ATOM 3037 CG LEU A 400 0 10.877 41.741 35.288 1.00 21.27
ATOM 3038 CD1 LEU A 400 0 12.130 41.638 36.151 1.00 19.27
ATOM 3039 CD2 LEU A 400 0 10.536 43.166 34.926 1.00 19.86
ATOM 3040 N HIS A 401 0 10.945 42.916 31.321 1.00 14.34
10 ATOM 3041 CA HIS A 401 0 11.830 43.707 30.508 1.00 16.06
ATOM 3042 C HIS A 401 0 12.924 44.300 31.428 1.00 16.15
ATOM 3043 O HIS A 401 0 12.644 44.543 32.600 1.00 13.61
ATOM 3044 CB HIS A 401 0 11.105 44.884 29.843 1.00 13.27
ATOM 3045 CG HIS A 401 0 10.184 44.441 28.751 1.00 14.50
15 ATOM 3046 ND1 HIS A 401 0 10.201 44.973 27.479 1.00 14.96
ATOM 3047 CD2 HIS A 401 0 9.202 43.492 28.750 1.00 12.35
ATOM 3048 CE1 HIS A 401 0 9.263 44.387 26.725 1.00 12.61
ATOM 3049 NE2 HIS A 401 0 8.677 43.507 27.492 1.00 12.41
ATOM 3050 N GLY A 402 0 14.103 44.549 30.855 1.00 15.59
20 ATOM 3051 CA GLY A 402 0 15.152 45.209 31.598 1.00 15.18
ATOM 3052 C GLY A 402 0 16.009 44.351 32.510 1.00 15.96
ATOM 3053 O GLY A 402 0 16.927 44.898 33.170 1.00 16.30
ATOM 3054 N HIS A 403 0 15.618 43.147 32.893 1.00 12.96
ATOM 3055 CA HIS A 403 0 16.282 42.337 33.873 1.00 15.00
25 ATOM 3056 C HIS A 403 0 16.226 40.839 33.586 1.00 15.22
ATOM 3057 O HIS A 403 0 15.253 40.381 32.971 1.00 16.16
ATOM 3058 CB HIS A 403 0 15.525 42.478 35.227 1.00 14.13
ATOM 3059 CG HIS A 403 0 15.571 43.829 35.827 1.00 16.69
ATOM 3060 ND1 HIS A 403 0 16.604 44.253 36.649 1.00 16.13
30 ATOM 3061 CD2 HIS A 403 0 14.744 44.911 35.659 1.00 15.50
ATOM 3062 CE1 HIS A 403 0 16.425 45.520 37.002 1.00 15.02
ATOM 3063 NE2 HIS A 403 0 15.285 45.905 36.430 1.00 16.15
ATOM 3064 N ALA A 404 0 17.138 40.054 34.113 1.00 13.71
ATOM 3065 CA ALA A 404 0 17.039 38.607 34.158 1.00 12.60
35 ATOM 3066 C ALA A 404 0 16.771 38.370 35.649 1.00 12.31
ATOM 3067 O ALA A 404 0 17.156 39.291 36.373 1.00 13.94
ATOM 3068 CB ALA A 404 0 18.249 37.819 33.721 1.00 13.84
ATOM 3069 N PHE A 405 0 16.085 37.356 36.126 1.00 12.21

ATOM 3070 CA PHE A 405 O 15.813 37.235 37.559 1.00 11.64
ATOM 3071 C PHE A 405 O 16.177 35.821 38.008 1.00 12.55
ATOM 3072 O PHE A 405 O 16.196 34.883 37.201 1.00 12.23
ATOM 3073 CB PHE A 405 O 14.325 37.487 37.907 1.00 11.82
5 ATOM 3074 CG PHE A 405 O 13.382 36.893 36.879 1.00 11.75
ATOM 3075 CD1 PHE A 405 O 13.030 35.557 36.933 1.00 10.76
ATOM 3076 CD2 PHE A 405 O 12.917 37.663 35.824 1.00 11.55
ATOM 3077 CE1 PHE A 405 O 12.189 35.002 35.978 1.00 11.52
ATOM 3078 CE2 PHE A 405 O 12.087 37.112 34.862 1.00 13.32
10 ATOM 3079 CZ PHE A 405 O 11.692 35.767 34.946 1.00 11.45
ATOM 3080 N SER A 406 O 16.414 35.625 39.288 1.00 12.86
ATOM 3081 CA SER A 406 O 16.660 34.286 39.796 1.00 13.43
ATOM 3082 C SER A 406 O 15.276 33.712 40.130 1.00 13.49
ATOM 3083 O SER A 406 O 14.518 34.375 40.847 1.00 10.13
15 ATOM 3084 CB SER A 406 O 17.433 34.290 41.123 1.00 13.78
ATOM 3085 OG SER A 406 O 18.708 34.834 40.938 1.00 16.72
ATOM 3086 N VAL A 407 O 15.100 32.453 39.741 1.00 14.53
ATOM 3087 CA VAL A 407 O 13.853 31.777 40.093 1.00 13.90
ATOM 3088 C VAL A 407 O 14.160 30.943 41.325 1.00 14.53
20 ATOM 3089 O VAL A 407 O 14.513 29.753 41.262 1.00 14.62
ATOM 3090 CB VAL A 407 O 13.333 30.903 38.941 1.00 16.43
ATOM 3091 CG1 VAL A 407 O 11.969 30.317 39.341 1.00 16.69
ATOM 3092 CG2 VAL A 407 O 13.272 31.682 37.626 1.00 14.90
ATOM 3093 N VAL A 408 O 13.971 31.544 42.485 1.00 14.32
25 ATOM 3094 CA VAL A 408 O 14.173 30.947 43.780 1.00 15.47
ATOM 3095 C VAL A 408 O 13.115 29.870 44.049 1.00 16.51
ATOM 3096 O VAL A 408 O 13.387 28.927 44.812 1.00 17.39
ATOM 3097 CB VAL A 408 O 14.280 31.967 44.932 1.00 15.75
ATOM 3098 CG1 VAL A 408 O 15.345 33.015 44.600 1.00 14.81
30 ATOM 3099 CG2 VAL A 408 O 12.952 32.693 45.189 1.00 15.99
ATOM 3100 N ARG A 409 O 11.972 29.940 43.387 1.00 16.28
ATOM 3101 CA ARG A 409 O 10.960 28.900 43.570 1.00 17.67
ATOM 3102 C ARG A 409 O 10.217 28.757 42.236 1.00 17.09
ATOM 3103 O ARG A 409 O 9.585 29.698 41.763 1.00 15.25
35 ATOM 3104 CB ARG A 409 O 9.993 29.143 44.718 1.00 17.87
ATOM 3105 CG ARG A 409 O 8.796 28.188 44.663 1.00 21.12
ATOM 3106 CD ARG A 409 O 8.008 28.181 45.945 1.00 22.10
ATOM 3107 NE ARG A 409 O 6.801 27.370 45.955 1.00 24.80

ATOM 3108 CZ ARG A 409 O 5.918 27.361 46.961 1.00 25.93
ATOM 3109 NH1 ARG A 409 O 4.859 26.569 46.877 1.00 27.14
ATOM 3110 NH2 ARG A 409 O 6.068 28.117 48.046 1.00 25.44
ATOM 3111 N SER A 410 O 10.366 27.576 41.668 1.00 16.33
5 ATOM 3112 CA SER A 410 O 9.802 27.245 40.373 1.00 18.33
ATOM 3113 C SER A 410 O 8.406 26.612 40.492 1.00 18.60
ATOM 3114 O SER A 410 O 7.941 26.223 41.566 1.00 16.94
ATOM 3115 CB SER A 410 O 10.724 26.199 39.705 1.00 19.51
ATOM 3116 OG SER A 410 O 11.718 26.865 38.933 1.00 20.28
10 ATOM 3117 N ALA A 411 O 7.754 26.551 39.343 1.00 18.19
ATOM 3118 CA ALA A 411 O 6.458 25.899 39.231 1.00 19.76
ATOM 3119 C ALA A 411 O 6.667 24.406 39.474 1.00 22.62
ATOM 3120 O ALA A 411 O 7.636 23.759 39.067 1.00 20.97
ATOM 3121 CB ALA A 411 O 5.873 26.075 37.841 1.00 17.13
15 ATOM 3122 N GLY A 412 O 5.710 23.856 40.229 1.00 26.30
ATOM 3123 CA GLY A 412 O 5.714 22.442 40.558 1.00 27.05
ATOM 3124 C GLY A 412 O 6.692 22.150 41.677 1.00 29.22
ATOM 3125 O GLY A 412 O 6.917 20.959 41.944 1.00 32.10
ATOM 3126 N SER A 413 O 7.293 23.139 42.322 1.00 28.66
20 ATOM 3127 CA SER A 413 O 8.223 22.871 43.400 1.00 28.58
ATOM 3128 C SER A 413 O 7.757 23.600 44.642 1.00 29.64
ATOM 3129 O SER A 413 O 7.279 24.735 44.524 1.00 30.66
ATOM 3130 CB SER A 413 O 9.610 23.407 43.015 1.00 30.12
ATOM 3131 OG SER A 413 O 10.484 23.233 44.127 1.00 31.74
25 ATOM 3132 N SER A 414 O 7.902 23.031 45.819 1.00 29.19
ATOM 3133 CA SER A 414 O 7.523 23.753 47.033 1.00 30.71
ATOM 3134 C SER A 414 O 8.762 24.124 47.834 1.00 30.51
ATOM 3135 O SER A 414 O 8.746 24.453 49.017 1.00 31.90
ATOM 3136 CB SER A 414 O 6.612 22.832 47.853 1.00 31.10
30 ATOM 3137 OG SER A 414 O 7.438 21.764 48.299 1.00 34.24
ATOM 3138 N THR A 415 O 9.919 24.063 47.194 1.00 30.60
ATOM 3139 CA THR A 415 O 11.194 24.336 47.860 1.00 30.60
ATOM 3140 C THR A 415 O 11.819 25.614 47.291 1.00 27.71
ATOM 3141 O THR A 415 O 11.582 25.998 46.137 1.00 27.49
35 ATOM 3142 CB THR A 415 O 12.089 23.095 47.747 1.00 32.16
ATOM 3143 OG1 THR A 415 O 13.411 23.441 47.285 1.00 35.60
ATOM 3144 CG2 THR A 415 O 11.599 22.103 46.710 1.00 34.11
ATOM 3145 N TYR A 416 O 12.662 26.268 48.053 1.00 24.34

ATOM 3146 CA TYR A 416 O 13.288 27.513 47.621 1.00 25.69
ATOM 3147 C TYR A 416 O 14.782 27.297 47.392 1.00 24.69
ATOM 3148 O TYR A 416 O 15.364 26.603 48.211 1.00 25.96
ATOM 3149 CB TYR A 416 O 13.129 28.633 48.659 1.00 23.79
5 ATOM 3150 CG TYR A 416 O 11.690 29.091 48.794 1.00 24.53
ATOM 3151 CD1 TYR A 416 O 10.789 28.387 49.596 1.00 24.14
ATOM 3152 CD2 TYR A 416 O 11.230 30.219 48.131 1.00 23.99
ATOM 3153 CE1 TYR A 416 O 9.474 28.799 49.713 1.00 23.70
ATOM 3154 CE2 TYR A 416 O 9.922 30.641 48.248 1.00 23.96
10 ATOM 3155 CZ TYR A 416 O 9.050 29.929 49.054 1.00 23.73
ATOM 3156 OH TYR A 416 O 7.744 30.337 49.152 1.00 23.53
ATOM 3157 N ASN A 417 O 15.360 27.867 46.353 1.00 22.34
ATOM 3158 CA ASN A 417 O 16.810 27.702 46.223 1.00 20.83
ATOM 3159 C ASN A 417 O 17.425 29.089 46.092 1.00 20.43
15 ATOM 3160 O ASN A 417 O 17.247 29.761 45.082 1.00 20.00
ATOM 3161 CB ASN A 417 O 17.179 26.763 45.086 1.00 19.72
ATOM 3162 CG ASN A 417 O 18.660 26.716 44.758 1.00 19.50
ATOM 3163 OD1 ASN A 417 O 19.485 27.313 45.465 1.00 20.18
ATOM 3164 ND2 ASN A 417 O 18.981 26.043 43.660 1.00 17.21
20 ATOM 3165 N PHE A 418 O 18.153 29.508 47.119 1.00 20.79
ATOM 3166 CA PHE A 418 O 18.831 30.797 47.049 1.00 20.77
ATOM 3167 C PHE A 418 O 20.314 30.613 46.725 1.00 20.47
ATOM 3168 O PHE A 418 O 20.973 31.618 46.517 1.00 19.47
ATOM 3169 CB PHE A 418 O 18.764 31.542 48.384 1.00 20.52
25 ATOM 3170 CG PHE A 418 O 17.332 31.821 48.753 1.00 22.19
ATOM 3171 CD1 PHE A 418 O 16.644 30.947 49.578 1.00 21.36
ATOM 3172 CD2 PHE A 418 O 16.697 32.951 48.244 1.00 21.95
ATOM 3173 CE1 PHE A 418 O 15.320 31.208 49.919 1.00 21.64
ATOM 3174 CE2 PHE A 418 O 15.386 33.198 48.599 1.00 22.81
30 ATOM 3175 CZ PHE A 418 O 14.694 32.325 49.419 1.00 22.57
ATOM 3176 N VAL A 419 O 20.816 29.380 46.732 1.00 19.72
ATOM 3177 CA VAL A 419 O 22.272 29.235 46.564 1.00 19.96
ATOM 3178 C VAL A 419 O 22.682 29.261 45.114 1.00 20.65
ATOM 3179 O VAL A 419 O 23.634 29.875 44.671 1.00 21.02
35 ATOM 3180 CB VAL A 419 O 22.708 27.888 47.200 1.00 21.81
ATOM 3181 CG1 VAL A 419 O 23.954 27.291 46.588 1.00 21.97
ATOM 3182 CG2 VAL A 419 O 22.885 28.098 48.713 1.00 21.55
ATOM 3183 N ASN A 420 O 21.867 28.585 44.327 1.00 19.77

ATOM 3184 CA ASN A 420 0 22.076 28.232 42.967 1.00 21.81
ATOM 3185 C ASN A 420 0 21.028 28.263 41.891 1.00 20.21
ATOM 3186 O ASN A 420 0 21.046 27.407 41.004 1.00 20.13
ATOM 3187 CB ASN A 420 0 22.166 26.587 43.207 1.00 21.91
5 ATOM 3188 CG ASN A 420 0 23.441 26.231 42.529 1.00 24.12
ATOM 3189 OD1 ASN A 420 0 23.933 25.113 42.403 1.00 26.75
ATOM 3190 ND2 ASN A 420 0 24.051 27.318 42.027 1.00 25.42
ATOM 3191 N PRO A 421 0 19.987 29.034 42.038 1.00 20.27
ATOM 3192 CA PRO A 421 0 18.808 28.951 41.183 1.00 17.57
10 ATOM 3193 C PRO A 421 0 19.100 29.369 39.778 1.00 15.76
ATOM 3194 O PRO A 421 0 19.907 30.281 39.586 1.00 15.13
ATOM 3195 CB PRO A 421 0 17.769 29.850 41.894 1.00 19.52
ATOM 3196 CG PRO A 421 0 18.674 30.863 42.589 1.00 19.88
ATOM 3197 CD PRO A 421 0 19.847 30.057 43.095 1.00 20.45
15 ATOM 3198 N VAL A 422 0 18.385 28.803 38.820 1.00 15.28
ATOM 3199 CA VAL A 422 0 18.502 29.239 37.420 1.00 13.48
ATOM 3200 C VAL A 422 0 18.157 30.721 37.397 1.00 14.53
ATOM 3201 O VAL A 422 0 17.340 31.208 38.183 1.00 14.44
ATOM 3202 CB VAL A 422 0 17.498 28.435 36.585 1.00 15.23
20 ATOM 3203 CG1 VAL A 422 0 16.032 28.747 36.937 1.00 13.85
ATOM 3204 CG2 VAL A 422 0 17.681 28.514 35.089 1.00 13.26
ATOM 3205 N LYS A 423 0 18.691 31.447 36.451 1.00 15.35
ATOM 3206 CA LYS A 423 0 18.366 32.831 36.189 1.00 17.23
ATOM 3207 C LYS A 423 0 17.759 32.891 34.784 1.00 16.55
25 ATOM 3208 O LYS A 423 0 18.284 32.189 33.909 1.00 16.92
ATOM 3209 CB LYS A 423 0 19.627 33.681 36.174 1.00 19.33
ATOM 3210 CG LYS A 423 0 20.118 33.985 37.565 1.00 24.09
ATOM 3211 CD LYS A 423 0 21.065 35.206 37.466 1.00 27.32
ATOM 3212 CE LYS A 423 0 22.470 34.596 37.263 1.00 28.78
30 ATOM 3213 NZ LYS A 423 0 23.128 34.482 38.595 1.00 29.50
ATOM 3214 N ARG A 424 0 16.630 33.570 34.617 1.00 15.85
ATOM 3215 CA ARG A 424 0 16.016 33.592 33.294 1.00 16.20
ATOM 3216 C ARG A 424 0 15.235 34.890 33.105 1.00 14.86
ATOM 3217 O ARG A 424 0 15.354 35.771 33.959 1.00 14.64
35 ATOM 3218 CB ARG A 424 0 15.158 32.367 32.994 1.00 16.11
ATOM 3219 CG ARG A 424 0 14.036 31.864 33.849 1.00 14.06
ATOM 3220 CD ARG A 424 0 13.447 30.506 33.427 1.00 11.65
ATOM 3221 NE ARG A 424 0 13.422 30.395 31.961 1.00 9.03

ATOM 3222 CZ ARG A 424 0 13.312 29.234 31.319 1.00 10.63
ATOM 3223 NH1 ARG A 424 0 13.185 28.133 32.082 1.00 11.02
ATOM 3224 NH2 ARG A 424 0 13.403 29.213 29.988 1.00 8.52
ATOM 3225 N ASP A 425 0 14.519 34.975 31.995 1.00 13.83
5 ATOM 3226 CA ASP A 425 0 13.751 36.209 31.752 1.00 15.00
ATOM 3227 C ASP A 425 0 12.298 35.929 31.359 1.00 15.65
ATOM 3228 O ASP A 425 0 11.474 36.850 31.271 1.00 15.11
ATOM 3229 CB ASP A 425 0 14.499 37.130 30.797 1.00 12.96
ATOM 3230 CG ASP A 425 0 14.609 36.652 29.371 1.00 14.32
10 ATOM 3231 OD1 ASP A 425 0 13.697 35.957 28.818 1.00 13.30
ATOM 3232 OD2 ASP A 425 0 15.632 37.003 28.729 1.00 13.76
ATOM 3233 N VAL A 426 0 11.883 34.675 31.206 1.00 15.21
ATOM 3234 CA VAL A 426 0 10.530 34.229 30.984 1.00 13.92
ATOM 3235 C VAL A 426 0 10.247 33.000 31.865 1.00 13.98
15 ATOM 3236 O VAL A 426 0 10.891 31.965 31.696 1.00 15.56
ATOM 3237 CB VAL A 426 0 10.128 33.807 29.567 1.00 12.49
ATOM 3238 CG1 VAL A 426 0 8.629 33.473 29.531 1.00 13.99
ATOM 3239 CG2 VAL A 426 0 10.390 34.874 28.536 1.00 12.37
ATOM 3240 N VAL A 427 0 9.274 33.090 32.766 1.00 12.82
20 ATOM 3241 CA VAL A 427 0 8.979 31.969 33.639 1.00 12.27
ATOM 3242 C VAL A 427 0 7.495 31.589 33.651 1.00 14.14
ATOM 3243 O VAL A 427 0 6.594 32.426 33.682 1.00 14.10
ATOM 3244 CB VAL A 427 0 9.458 32.315 35.056 1.00 11.46
ATOM 3245 CG1 VAL A 427 0 8.732 33.549 35.594 1.00 9.39
25 ATOM 3246 CG2 VAL A 427 0 9.353 31.116 35.982 1.00 10.53
ATOM 3247 N SER A 428 0 7.229 30.282 33.622 1.00 13.74
ATOM 3248 CA SER A 428 0 5.889 29.766 33.721 1.00 15.16
ATOM 3249 C SER A 428 0 5.445 29.878 35.171 1.00 15.48
ATOM 3250 O SER A 428 0 6.186 29.505 36.087 1.00 15.38
30 ATOM 3251 CB SER A 428 0 5.776 28.323 33.206 1.00 16.37
ATOM 3252 OG SER A 428 0 4.464 27.821 33.484 1.00 17.00
ATOM 3253 N LEU A 429 0 4.246 30.376 35.399 1.00 15.74
ATOM 3254 CA LEU A 429 0 3.686 30.489 36.744 1.00 15.73
ATOM 3255 C LEU A 429 0 3.035 29.184 37.198 1.00 16.41
35 ATOM 3256 O LEU A 429 0 2.741 29.041 38.390 1.00 15.74
ATOM 3257 CB LEU A 429 0 2.669 31.627 36.886 1.00 14.99
ATOM 3258 CG LEU A 429 0 3.155 33.027 36.540 1.00 16.60
ATOM 3259 CD1 LEU A 429 0 2.043 34.042 36.862 1.00 17.78

ATOM 3260 CD2 LEU A 429 O 4.438 33.386 37.281 1.00 16.26
ATOM 3261 N GLY A 430 O 2.913 28.218 36.295 1.00 17.70
ATOM 3262 CA GLY A 430 O 2.419 26.904 36.701 1.00 19.84
ATOM 3263 C GLY A 430 O 0.894 26.836 36.778 1.00 20.72
5 ATOM 3264 O GLY A 430 O 0.178 27.498 36.029 1.00 20.89
ATOM 3265 N VAL A 431 O 0.428 26.056 37.729 1.00 22.04
ATOM 3266 CA VAL A 431 O -0.956 25.713 37.966 1.00 22.61
ATOM 3267 C VAL A 431 O -1.337 26.028 39.409 1.00 23.06
ATOM 3268 O VAL A 431 O -0.476 26.392 40.218 1.00 22.42
10 ATOM 3269 CB VAL A 431 O -1.245 24.193 37.768 1.00 23.03
ATOM 3270 CG1 VAL A 431 O -0.795 23.672 36.416 1.00 22.74
ATOM 3271 CG2 VAL A 431 O -0.574 23.315 38.820 1.00 22.77
ATOM 3272 N THR A 432 O -2.615 25.835 39.704 1.00 23.88
ATOM 3273 CA THR A 432 O -3.168 26.067 41.041 1.00 24.18
15 ATOM 3274 C THR A 432 O -2.324 25.401 42.092 1.00 23.94
ATOM 3275 O THR A 432 O -1.915 24.249 41.909 1.00 24.69
ATOM 3276 CB THR A 432 O -4.625 25.565 41.069 1.00 25.75
ATOM 3277 OG1 THR A 432 O -5.336 26.344 40.087 1.00 25.87
ATOM 3278 CG2 THR A 432 O -5.319 25.800 42.398 1.00 26.65
20 ATOM 3279 N GLY A 433 O -1.924 26.136 43.124 1.00 24.45
ATOM 3280 CA GLY A 433 O -1.035 25.589 44.159 1.00 22.27
ATOM 3281 C GLY A 433 O 0.394 26.120 43.983 1.00 23.26
ATOM 3282 O GLY A 433 O 1.103 26.212 45.000 1.00 23.30
ATOM 3283 N ASP A 434 O 0.833 26.481 42.776 1.00 21.12
25 ATOM 3284 CA ASP A 434 O 2.192 26.986 42.586 1.00 20.62
ATOM 3285 C ASP A 434 O 2.360 28.408 43.126 1.00 22.36
ATOM 3286 O ASP A 434 O 1.425 29.225 43.076 1.00 21.24
ATOM 3287 CB ASP A 434 O 2.548 27.024 41.087 1.00 18.78
ATOM 3288 CG ASP A 434 O 2.827 25.616 40.597 1.00 19.71
30 ATOM 3289 OD1 ASP A 434 O 3.304 24.828 41.409 1.00 20.43
ATOM 3290 OD2 ASP A 434 O 2.596 25.242 39.432 1.00 21.58
ATOM 3291 N GLU A 435 O 3.585 28.721 43.562 1.00 22.08
ATOM 3292 CA GLU A 435 O 3.853 30.077 44.068 1.00 23.24
ATOM 3293 C GLU A 435 O 5.244 30.512 43.612 1.00 20.24
35 ATOM 3294 O GLU A 435 O 6.201 30.611 44.372 1.00 19.50
ATOM 3295 CB GLU A 435 O 3.659 30.068 45.572 1.00 25.56
ATOM 3296 CG GLU A 435 O 3.739 31.409 46.258 1.00 30.52
ATOM 3297 CD GLU A 435 O 3.107 31.350 47.657 1.00 35.00

ATOM 3298 OE1 GLU A 435 O 2.093 30.603 47.760 1.00 35.71
ATOM 3299 OE2 GLU A 435 O 3.658 32.020 48.579 1.00 35.91
ATOM 3300 N VAL A 436 O 5.344 30.690 42.297 1.00 17.80
ATOM 3301 CA VAL A 436 O 6.564 31.083 41.640 1.00 15.30
5 ATOM 3302 C VAL A 436 O 7.049 32.416 42.221 1.00 17.15
ATOM 3303 O VAL A 436 O 6.326 33.402 42.275 1.00 17.48
ATOM 3304 CB VAL A 436 O 6.360 31.219 40.129 1.00 14.63
ATOM 3305 CG1 VAL A 436 O 7.463 32.009 39.454 1.00 10.79
ATOM 3306 CG2 VAL A 436 O 6.238 29.806 39.536 1.00 14.13
10 ATOM 3307 N THR A 437 O 8.290 32.391 42.691 1.00 16.51
ATOM 3308 CA THR A 437 O 8.940 33.505 43.364 1.00 16.19
ATOM 3309 C THR A 437 O 10.254 33.817 42.668 1.00 15.24
ATOM 3310 O THR A 437 O 11.100 32.940 42.419 1.00 15.47
ATOM 3311 CB THR A 437 O 9.190 33.067 44.827 1.00 14.95
15 ATOM 3312 OG1 THR A 437 O 7.969 32.499 45.308 1.00 13.50
ATOM 3313 CG2 THR A 437 O 9.599 34.232 45.697 1.00 13.41
ATOM 3314 N ILE A 438 O 10.413 35.059 42.251 1.00 13.38
ATOM 3315 CA ILE A 438 O 11.597 35.471 41.510 1.00 15.78
ATOM 3316 C ILE A 438 O 12.292 36.590 42.264 1.00 15.86
20 ATOM 3317 O ILE A 438 O 11.617 37.270 43.048 1.00 17.32
ATOM 3318 CB ILE A 438 O 11.249 35.848 40.053 1.00 15.40
ATOM 3319 CG1 ILE A 438 O 10.340 37.055 39.985 1.00 15.85
ATOM 3320 CG2 ILE A 438 O 10.602 34.653 39.346 1.00 17.11
ATOM 3321 CD1 ILE A 438 O 9.971 37.607 38.632 1.00 17.49
25 ATOM 3322 N ARG A 439 O 13.599 36.789 42.055 1.00 16.02
ATOM 3323 CA ARG A 439 O 14.315 37.896 42.671 1.00 13.90
ATOM 3324 C ARG A 439 O 15.181 38.645 41.676 1.00 13.52
ATOM 3325 O ARG A 439 O 15.748 38.056 40.762 1.00 14.74
ATOM 3326 CB ARG A 439 O 15.193 37.501 43.850 1.00 15.15
30 ATOM 3327 CG ARG A 439 O 14.457 37.235 45.147 1.00 14.83
ATOM 3328 CD ARG A 439 O 15.367 37.337 46.355 1.00 14.08
ATOM 3329 NE ARG A 439 O 14.613 37.000 47.566 1.00 17.06
ATOM 3330 CZ ARG A 439 O 15.192 36.922 48.767 1.00 18.01
ATOM 3331 NH1 ARG A 439 O 16.487 37.176 48.908 1.00 17.76
35 ATOM 3332 NH2 ARG A 439 O 14.459 36.604 49.818 1.00 18.55
ATOM 3333 N PHE A 440 O 15.314 39.957 41.853 1.00 14.44
ATOM 3334 CA PHE A 440 O 16.204 40.737 40.993 1.00 15.97
ATOM 3335 C PHE A 440 O 16.645 41.986 41.761 1.00 15.86

ATOM 3336 O PHE A 440 0 16.113 42.313 42.801 1.00 15.79
ATOM 3337 CB PHE A 440 0 15.638 41.081 39.620 1.00 15.17
ATOM 3338 CG PHE A 440 0 14.416 41.948 39.647 1.00 16.95
ATOM 3339 CD1 PHE A 440 0 14.525 43.333 39.528 1.00 17.23
5 ATOM 3340 CD2 PHE A 440 0 13.158 41.377 39.798 1.00 16.35
ATOM 3341 CE1 PHE A 440 0 13.397 44.152 39.566 1.00 17.07
ATOM 3342 CE2 PHE A 440 0 12.026 42.180 39.841 1.00 17.12
ATOM 3343 CZ PHE A 440 0 12.144 43.575 39.719 1.00 18.30
ATOM 3344 N VAL A 441 0 17.676 42.648 41.268 1.00 16.10
10 ATOM 3345 CA VAL A 441 0 18.172 43.874 41.879 1.00 16.29
ATOM 3346 C VAL A 441 0 17.776 45.035 40.972 1.00 14.00
ATOM 3347 O VAL A 441 0 17.866 44.924 39.736 1.00 12.72
ATOM 3348 CB VAL A 441 0 19.675 43.769 42.144 1.00 18.13
ATOM 3349 CG1 VAL A 441 0 20.195 45.040 42.794 1.00 18.53
15 ATOM 3350 CG2 VAL A 441 0 19.969 42.583 43.065 1.00 18.55
ATOM 3351 N THR A 442 0 17.328 46.125 41.579 1.00 11.73
ATOM 3352 CA THR A 442 0 16.905 47.291 40.800 1.00 13.02
ATOM 3353 C THR A 442 0 18.055 48.208 40.432 1.00 14.83
ATOM 3354 O THR A 442 0 18.218 49.323 40.947 1.00 15.17
20 ATOM 3355 CB THR A 442 0 15.840 48.127 41.558 1.00 14.62
ATOM 3356 OG1 THR A 442 0 16.314 48.463 42.864 1.00 14.34
ATOM 3357 CG2 THR A 442 0 14.552 47.299 41.727 1.00 13.82
ATOM 3358 N ASP A 443 0 18.818 47.764 39.437 1.00 15.48
ATOM 3359 CA ASP A 443 0 20.004 48.449 38.964 1.00 16.57
25 ATOM 3360 C ASP A 443 0 19.807 49.010 37.569 1.00 15.38
ATOM 3361 O ASP A 443 0 20.788 49.208 36.858 1.00 15.57
ATOM 3362 CB ASP A 443 0 21.133 47.391 38.962 1.00 19.75
ATOM 3363 CG ASP A 443 0 20.877 46.264 37.990 1.00 22.78
ATOM 3364 OD1 ASP A 443 0 21.711 45.353 37.789 1.00 25.70
30 ATOM 3365 OD2 ASP A 443 0 19.836 46.161 37.313 1.00 23.88
ATOM 3366 N ASN A 444 0 18.593 49.278 37.144 1.00 13.71
ATOM 3367 CA ASN A 444 0 18.388 49.721 35.752 1.00 15.87
ATOM 3368 C ASN A 444 0 17.245 50.728 35.702 1.00 17.00
ATOM 3369 O ASN A 444 0 16.052 50.419 35.614 1.00 16.83
35 ATOM 3370 CB ASN A 444 0 18.198 48.453 34.930 1.00 15.78
ATOM 3371 CG ASN A 444 0 18.225 48.675 33.442 1.00 18.49
ATOM 3372 OD1 ASN A 444 0 18.505 49.809 33.047 1.00 19.42
ATOM 3373 ND2 ASN A 444 0 17.925 47.689 32.588 1.00 15.91

ATOM 3374 N PRO A 445 O 17.598 52.003 35.890 1.00 17.59
ATOM 3375 CA PRO A 445 O 16.683 53.137 35.938 1.00 16.56
ATOM 3376 C PRO A 445 O 15.788 53.217 34.721 1.00 16.99
ATOM 3377 O PRO A 445 O 16.293 53.246 33.594 1.00 17.02
5 ATOM 3378 CB PRO A 445 O 17.552 54.418 35.951 1.00 18.28
ATOM 3379 CG PRO A 445 O 18.870 53.871 36.474 1.00 18.09
ATOM 3380 CD PRO A 445 O 19.002 52.409 36.084 1.00 16.05
ATOM 3381 N GLY A 446 O 14.462 53.194 34.918 1.00 17.16
ATOM 3382 CA GLY A 446 O 13.560 53.281 33.743 1.00 15.84
10 ATOM 3383 C GLY A 446 O 12.297 52.453 33.984 1.00 14.24
ATOM 3384 O GLY A 446 O 12.192 51.797 35.005 1.00 12.22
ATOM 3385 N PRO A 447 O 11.285 52.697 33.181 1.00 15.53
ATOM 3386 CA PRO A 447 O 9.999 52.048 33.195 1.00 15.24
ATOM 3387 C PRO A 447 O 10.101 50.737 32.401 1.00 13.82
15 ATOM 3388 O PRO A 447 O 10.514 50.733 31.240 1.00 13.85
ATOM 3389 CB PRO A 447 O 9.013 52.976 32.473 1.00 16.21
ATOM 3390 CG PRO A 447 O 9.933 53.729 31.554 1.00 16.19
ATOM 3391 CD PRO A 447 O 11.347 53.707 32.096 1.00 17.15
ATOM 3392 N TRP A 448 O 9.787 49.623 33.021 1.00 11.83
20 ATOM 3393 CA TRP A 448 O 9.898 48.317 32.371 1.00 14.30
ATOM 3394 C TRP A 448 O 8.610 47.493 32.427 1.00 13.12
ATOM 3395 O TRP A 448 O 8.013 47.355 33.502 1.00 11.63
ATOM 3396 CB TRP A 448 O 10.985 47.483 33.095 1.00 13.17
ATOM 3397 CG TRP A 448 O 12.321 48.160 33.124 1.00 14.54
25 ATOM 3398 CD1 TRP A 448 O 12.897 48.728 34.239 1.00 14.19
ATOM 3399 CD2 TRP A 448 O 13.211 48.382 32.029 1.00 14.38
ATOM 3400 NE1 TRP A 448 O 14.083 49.290 33.873 1.00 15.02
ATOM 3401 CE2 TRP A 448 O 14.308 49.095 32.527 1.00 14.41
ATOM 3402 CE3 TRP A 448 O 13.193 48.053 30.672 1.00 15.39
30 ATOM 3403 CZ2 TRP A 448 O 15.388 49.467 31.729 1.00 14.57
ATOM 3404 CZ3 TRP A 448 O 14.250 48.446 29.867 1.00 14.92
ATOM 3405 CH2 TRP A 448 O 15.355 49.135 30.399 1.00 14.93
ATOM 3406 N PHE A 449 O 8.231 46.884 31.315 1.00 14.03
ATOM 3407 CA PHE A 449 O 7.023 46.039 31.297 1.00 13.60
35 ATOM 3408 C PHE A 449 O 7.231 44.712 32.016 1.00 15.32
ATOM 3409 O PHE A 449 O 8.312 44.093 31.993 1.00 13.66
ATOM 3410 CB PHE A 449 O 6.627 45.773 29.845 1.00 16.19
ATOM 3411 CG PHE A 449 O 5.221 46.033 29.380 1.00 18.26

	ATOM	3412	CD1	PHE A 449	O	4.165	46.288	30.226	1.00	17.95
	ATOM	3413	CD2	PHE A 449	O	4.962	46.027	28.011	1.00	20.73
	ATOM	3414	CE1	PHE A 449	O	2.899	46.565	29.745	1.00	18.55
	ATOM	3415	CE2	PHE A 449	O	3.701	46.293	27.503	1.00	20.13
5	ATOM	3416	CZ	PHE A 449	O	2.664	46.543	28.387	1.00	18.59
	ATOM	3417	N	PHE A 450	O	6.195	44.245	32.715	1.00	12.79
	ATOM	3418	CA	PHE A 450	O	6.119	42.963	33.359	1.00	14.38
	ATOM	3419	C	PHE A 450	O	4.775	42.323	32.952	1.00	15.45
	ATOM	3420	O	PHE A 450	O	3.743	42.812	33.423	1.00	15.30
10	ATOM	3421	CB	PHE A 450	O	6.186	43.041	34.879	1.00	15.06
	ATOM	3422	CG	PHE A 450	O	6.210	41.693	35.555	1.00	15.95
	ATOM	3423	CD1	PHE A 450	O	7.157	40.734	35.204	1.00	16.36
	ATOM	3424	CD2	PHE A 450	O	5.325	41.398	36.570	1.00	15.45
	ATOM	3425	CE1	PHE A 450	O	7.222	39.518	35.855	1.00	13.87
15	ATOM	3426	CE2	PHE A 450	O	5.386	40.187	37.224	1.00	16.10
	ATOM	3427	CZ	PHE A 450	O	6.317	39.236	36.854	1.00	15.90
	ATOM	3428	N	HIS A 451	O	4.737	41.301	32.122	1.00	15.54
	ATOM	3429	CA	HIS A 451	O	3.443	40.841	31.610	1.00	16.24
	ATOM	3430	C	HIS A 451	O	3.461	39.426	31.073	1.00	16.95
20	ATOM	3431	O	HIS A 451	O	4.526	38.860	30.812	1.00	17.42
	ATOM	3432	CB	HIS A 451	O	2.996	41.743	30.435	1.00	14.01
	ATOM	3433	CG	HIS A 451	O	3.921	41.696	29.281	1.00	16.98
	ATOM	3434	ND1	HIS A 451	O	3.791	40.844	28.201	1.00	18.14
	ATOM	3435	CD2	HIS A 451	O	5.058	42.435	29.046	1.00	17.88
25	ATOM	3436	CE1	HIS A 451	O	4.759	41.060	27.337	1.00	17.83
	ATOM	3437	NE2	HIS A 451	O	5.554	42.011	27.842	1.00	18.98
	ATOM	3438	N	CYS A 452	O	2.261	38.863	30.951	1.00	16.78
	ATOM	3439	CA	CYS A 452	O	2.167	37.537	30.388	1.00	16.34
	ATOM	3440	C	CYS A 452	O	2.604	37.623	28.924	1.00	14.77
30	ATOM	3441	O	CYS A 452	O	2.167	38.514	28.188	1.00	13.61
	ATOM	3442	CB	CYS A 452	O	0.727	36.983	30.451	1.00	18.22
	ATOM	3443	SG	CYS A 452	O	0.701	35.325	29.692	1.00	19.80
	ATOM	3444	N	HIS A 453	O	3.388	36.640	28.474	1.00	13.29
	ATOM	3445	CA	HIS A 453	O	3.867	36.716	27.100	1.00	13.19
35	ATOM	3446	C	HIS A 453	O	2.983	35.987	26.099	1.00	13.47
	ATOM	3447	O	HIS A 453	O	3.296	35.974	24.906	1.00	11.93
	ATOM	3448	CB	HIS A 453	O	5.314	36.251	27.033	1.00	13.98
	ATOM	3449	CG	HIS A 453	O	6.124	36.860	25.945	1.00	11.89

ATOM 3450 ND1 HIS A 453 O 5.835 36.763 24.612 1.00 10.68
ATOM 3451 CD2 HIS A 453 O 7.270 37.594 26.072 1.00 12.71
ATOM 3452 CE1 HIS A 453 O 6.776 37.418 23.923 1.00 12.37
ATOM 3453 NE2 HIS A 453 O 7.663 37.930 24.793 1.00 13.20
5 ATOM 3454 N ILE A 454 O 1.860 35.429 26.549 1.00 15.35
ATOM 3455 CA ILE A 454 O 0.849 34.937 25.600 1.00 15.85
ATOM 3456 C ILE A 454 O 0.214 36.238 25.089 1.00 18.65
ATOM 3457 O ILE A 454 O -0.452 36.997 25.824 1.00 17.92
ATOM 3458 CB ILE A 454 O -0.156 34.001 26.280 1.00 16.46
10 ATOM 3459 CG1 ILE A 454 O 0.456 32.598 26.512 1.00 15.26
ATOM 3460 CG2 ILE A 454 O -1.402 33.898 25.419 1.00 14.21
ATOM 3461 CD1 ILE A 454 O -0.249 31.804 27.592 1.00 16.26
ATOM 3462 N GLU A 455 O 0.448 36.607 23.832 1.00 21.02
ATOM 3463 CA GLU A 455 O -0.024 37.856 23.289 1.00 23.78
15 ATOM 3464 C GLU A 455 O -1.526 38.042 23.422 1.00 24.40
ATOM 3465 O GLU A 455 O -1.953 39.161 23.700 1.00 24.30
ATOM 3466 CB GLU A 455 O 0.399 38.090 21.830 1.00 27.20
ATOM 3467 CG GLU A 455 O 0.602 39.599 21.595 1.00 33.86
ATOM 3468 CD GLU A 455 O 1.783 40.205 22.309 1.00 37.49
20 ATOM 3469 OE1 GLU A 455 O 2.311 39.657 23.320 1.00 41.51
ATOM 3470 OE2 GLU A 455 O 2.303 41.284 21.907 1.00 41.22
ATOM 3471 N PHE A 456 O -2.347 37.005 23.334 1.00 23.97
ATOM 3472 CA PHE A 456 O -3.775 37.163 23.516 1.00 24.68
ATOM 3473 C PHE A 456 O -4.084 37.533 24.959 1.00 25.11
25 ATOM 3474 O PHE A 456 O -5.181 38.092 25.170 1.00 27.37
ATOM 3475 CB PHE A 456 O -4.552 35.919 23.023 1.00 24.76
ATOM 3476 CG PHE A 456 O -4.098 35.614 21.606 1.00 24.98
ATOM 3477 CD1 PHE A 456 O -4.392 36.500 20.590 1.00 24.98
ATOM 3478 CD2 PHE A 456 O -3.331 34.506 21.320 1.00 24.42
30 ATOM 3479 CE1 PHE A 456 O -3.988 36.292 19.291 1.00 25.44
ATOM 3480 CE2 PHE A 456 O -2.913 34.293 20.015 1.00 26.40
ATOM 3481 CZ PHE A 456 O -3.226 35.171 18.997 1.00 25.10
ATOM 3482 N HIS A 457 O -3.205 37.294 25.922 1.00 22.35
ATOM 3483 CA HIS A 457 O -3.508 37.682 27.291 1.00 22.55
35 ATOM 3484 C HIS A 457 O -3.053 39.121 27.561 1.00 23.81
ATOM 3485 O HIS A 457 O -3.756 39.832 28.262 1.00 21.33
ATOM 3486 CB HIS A 457 O -2.912 36.766 28.336 1.00 20.96
ATOM 3487 CG HIS A 457 O -3.345 35.346 28.201 1.00 22.51

ATOM 3488 ND1 HIS A 457 O -2.745 34.329 28.905 1.00 21.40
ATOM 3489 CD2 HIS A 457 O -4.291 34.771 27.404 1.00 22.50
ATOM 3490 CE1 HIS A 457 O -3.320 33.184 28.575 1.00 22.51
ATOM 3491 NE2 HIS A 457 O -4.237 33.428 27.666 1.00 23.19
5 ATOM 3492 N LEU A 458 O -1.876 39.481 27.028 1.00 23.74
ATOM 3493 CA LEU A 458 O -1.357 40.817 27.125 1.00 24.76
ATOM 3494 C LEU A 458 O -2.411 41.828 26.616 1.00 26.52
ATOM 3495 O LEU A 458 O -2.757 42.751 27.351 1.00 25.18
ATOM 3496 CB LEU A 458 O -0.108 40.986 26.252 1.00 23.81
10 ATOM 3497 CG LEU A 458 O 0.898 42.062 26.624 1.00 24.09
ATOM 3498 CD1 LEU A 458 O 1.619 42.606 25.390 1.00 24.28
ATOM 3499 CD2 LEU A 458 O 0.351 43.195 27.462 1.00 23.72
ATOM 3500 N MET A 459 O -2.896 41.611 25.388 1.00 28.19
ATOM 3501 CA MET A 459 O -3.914 42.458 24.785 1.00 31.98
15 ATOM 3502 C MET A 459 O -5.207 42.436 25.603 1.00 29.95
ATOM 3503 O MET A 459 O -5.886 43.439 25.520 1.00 29.10
ATOM 3504 CB MET A 459 O -4.148 42.226 23.284 1.00 35.99
ATOM 3505 CG MET A 459 O -5.056 41.103 22.852 1.00 42.66
ATOM 3506 SD MET A 459 O -5.296 40.817 21.069 1.00 49.28
20 ATOM 3507 CE MET A 459 O -6.238 39.291 21.119 1.00 47.39
ATOM 3508 N ASN A 460 O -5.523 41.486 26.464 1.00 29.07
ATOM 3509 CA ASN A 460 O -6.706 41.539 27.296 1.00 29.41
ATOM 3510 C ASN A 460 O -6.407 41.908 28.746 1.00 28.46
ATOM 3511 O ASN A 460 O -7.183 41.577 29.645 1.00 26.89
25 ATOM 3512 CB ASN A 460 O -7.537 40.253 27.210 1.00 31.34
ATOM 3513 CG ASN A 460 O -8.325 40.243 25.900 1.00 33.82
ATOM 3514 OD1 ASN A 460 O -7.909 39.609 24.926 1.00 34.29
ATOM 3515 ND2 ASN A 460 O -9.437 40.971 25.861 1.00 34.55
ATOM 3516 N GLY A 461 O -5.320 42.655 28.981 1.00 26.30
30 ATOM 3517 CA GLY A 461 O -5.020 43.198 30.268 1.00 24.99
ATOM 3518 C GLY A 461 O -4.043 42.601 31.235 1.00 24.75
ATOM 3519 O GLY A 461 O -3.879 43.228 32.304 1.00 22.69
ATOM 3520 N LEU A 462 O -3.375 41.478 30.914 1.00 22.85
ATOM 3521 CA LEU A 462 O -2.478 40.872 31.913 1.00 22.10
35 ATOM 3522 C LEU A 462 O -1.071 41.485 31.890 1.00 21.56
ATOM 3523 O LEU A 462 O -0.116 40.876 31.415 1.00 20.28
ATOM 3524 CB LEU A 462 O -2.477 39.376 31.669 1.00 20.03
ATOM 3525 CG LEU A 462 O -2.010 38.393 32.720 1.00 20.40

ATOM 3526 CD1 LEU A 462 O -2.603 38.608 34.093 1.00 20.35
ATOM 3527 CD2 LEU A 462 O -2.385 36.983 32.229 1.00 21.01
ATOM 3528 N ALA A 463 O -0.908 42.695 32.408 1.00 20.00
ATOM 3529 CA ALA A 463 O 0.350 43.432 32.381 1.00 20.74
5 ATOM 3530 C ALA A 463 O 0.398 44.511 33.481 1.00 21.85
ATOM 3531 O ALA A 463 O -0.667 44.965 33.934 1.00 22.85
ATOM 3532 CB ALA A 463 O 0.559 44.179 31.060 1.00 15.13
ATOM 3533 N ILE A 464 O 1.605 44.810 33.950 1.00 19.91
ATOM 3534 CA ILE A 464 O 1.852 45.905 34.850 1.00 19.81
10 ATOM 3535 C ILE A 464 O 3.180 46.579 34.434 1.00 19.41
ATOM 3536 O ILE A 464 O 3.938 46.003 33.660 1.00 18.24
ATOM 3537 CB ILE A 464 O 1.910 45.678 36.347 1.00 19.13
ATOM 3538 CG1 ILE A 464 O 2.867 44.546 36.697 1.00 19.39
ATOM 3539 CG2 ILE A 464 O 0.520 45.455 36.924 1.00 18.48
15 ATOM 3540 CD1 ILE A 464 O 3.205 44.549 38.179 1.00 21.00
ATOM 3541 N VAL A 465 O 3.380 47.791 34.924 1.00 18.95
ATOM 3542 CA VAL A 465 O 4.579 48.570 34.637 1.00 18.36
ATOM 3543 C VAL A 465 O 5.327 48.928 35.931 1.00 18.07
ATOM 3544 O VAL A 465 O 4.787 49.424 36.931 1.00 15.19
20 ATOM 3545 CB VAL A 465 O 4.329 49.913 33.918 1.00 19.73
ATOM 3546 CG1 VAL A 465 O 5.659 50.605 33.602 1.00 18.34
ATOM 3547 CG2 VAL A 465 O 3.522 49.766 32.629 1.00 18.74
ATOM 3548 N PHE A 466 O 6.649 48.655 35.879 1.00 17.55
ATOM 3549 CA PHE A 466 O 7.499 49.051 37.013 1.00 14.72
25 ATOM 3550 C PHE A 466 O 8.251 50.344 36.653 1.00 12.68
ATOM 3551 O PHE A 466 O 9.007 50.420 35.679 1.00 12.23
ATOM 3552 CB PHE A 466 O 8.484 47.978 37.381 1.00 15.19
ATOM 3553 CG PHE A 466 O 7.962 46.770 38.080 1.00 15.90
ATOM 3554 CD1 PHE A 466 O 7.328 46.856 39.299 1.00 16.23
30 ATOM 3555 CD2 PHE A 466 O 8.153 45.533 37.492 1.00 16.23
ATOM 3556 CE1 PHE A 466 O 6.861 45.720 39.936 1.00 15.97
ATOM 3557 CE2 PHE A 466 O 7.665 44.389 38.133 1.00 18.27
ATOM 3558 CZ PHE A 466 O 7.018 44.480 39.352 1.00 16.74
ATOM 3559 N ALA A 467 O 8.045 51.361 37.443 1.00 10.60
35 ATOM 3560 CA ALA A 467 O 8.788 52.648 37.194 1.00 12.27
ATOM 3561 C ALA A 467 O 10.007 52.526 38.111 1.00 12.02
ATOM 3562 O ALA A 467 O 9.905 52.728 39.325 1.00 12.43
ATOM 3563 CB ALA A 467 O 7.845 53.790 37.501 1.00 10.50

ATOM 3564 N GLU A 468 0 11.126 51.989 37.625 1.00 12.62
ATOM 3565 CA GLU A 468 0 12.263 51.683 38.515 1.00 14.63
ATOM 3566 C GLU A 468 0 13.195 52.883 38.685 1.00 13.91
ATOM 3567 O GLU A 468 0 13.631 53.369 37.651 1.00 13.05
5 ATOM 3568 CB GLU A 468 0 13.049 50.546 37.843 1.00 14.51
ATOM 3569 CG GLU A 468 0 14.256 50.035 38.629 1.00 16.84
ATOM 3570 CD GLU A 468 0 14.805 48.779 37.975 1.00 17.96
ATOM 3571 OE1 GLU A 468 0 15.985 48.479 38.124 1.00 16.98
ATOM 3572 OE2 GLU A 468 0 14.086 48.043 37.260 1.00 18.42
10 ATOM 3573 N ASP A 469 0 13.546 53.286 39.886 1.00 15.17
ATOM 3574 CA ASP A 469 0 14.491 54.371 40.116 1.00 16.85
ATOM 3575 C ASP A 469 0 14.134 55.630 39.333 1.00 16.33
ATOM 3576 O ASP A 469 0 14.851 56.046 38.437 1.00 16.59
ATOM 3577 CB ASP A 469 0 15.899 53.920 39.748 1.00 19.86
15 ATOM 3578 CG ASP A 469 0 17.040 54.766 40.289 1.00 21.40
ATOM 3579 OD1 ASP A 469 0 16.811 55.793 40.943 1.00 22.21
ATOM 3580 OD2 ASP A 469 0 18.216 54.403 40.069 1.00 22.21
ATOM 3581 N MET A 470 0 13.007 56.246 39.635 1.00 16.12
ATOM 3582 CA MET A 470 0 12.522 57.373 38.853 1.00 18.77
20 ATOM 3583 C MET A 470 0 13.451 58.576 38.950 1.00 16.31
ATOM 3584 O MET A 470 0 13.591 59.208 37.925 1.00 13.55
ATOM 3585 CB MET A 470 0 11.116 57.847 39.302 1.00 20.06
ATOM 3586 CG MET A 470 0 10.041 56.941 38.684 1.00 23.99
ATOM 3587 SD MET A 470 0 8.375 57.337 39.283 1.00 26.08
25 ATOM 3588 CE MET A 470 0 8.030 58.581 38.020 1.00 24.40
ATOM 3589 N ALA A 471 0 14.046 58.793 40.117 1.00 14.69
ATOM 3590 CA ALA A 471 0 14.953 59.906 40.287 1.00 16.97
ATOM 3591 C ALA A 471 0 16.141 59.864 39.335 1.00 18.79
ATOM 3592 O ALA A 471 0 16.602 60.956 38.945 1.00 21.08
30 ATOM 3593 CB ALA A 471 0 15.471 59.927 41.728 1.00 17.62
ATOM 3594 N ASN A 472 0 16.623 58.695 38.912 1.00 17.28
ATOM 3595 CA ASN A 472 0 17.788 58.675 38.015 1.00 16.56
ATOM 3596 C ASN A 472 0 17.457 58.355 36.572 1.00 16.99
ATOM 3597 O ASN A 472 0 18.407 58.143 35.795 1.00 18.74
35 ATOM 3598 CB ASN A 472 0 18.811 57.645 38.548 1.00 14.60
ATOM 3599 CG ASN A 472 0 19.417 58.132 39.887 1.00 14.00
ATOM 3600 OD1 ASN A 472 0 18.895 57.830 40.967 1.00 12.71
ATOM 3601 ND2 ASN A 472 0 20.468 58.916 39.775 1.00 10.80

ATOM 3602 N THR A 473 O 16.174 58.284 36.239 1.00 14.26
ATOM 3603 CA THR A 473 O 15.789 57.885 34.882 1.00 15.82
ATOM 3604 C THR A 473 O 16.150 58.891 33.812 1.00 16.81
ATOM 3605 O THR A 473 O 16.599 58.455 32.746 1.00 15.89
5 ATOM 3606 CB THR A 473 O 14.267 57.576 34.826 1.00 16.10
ATOM 3607 OG1 THR A 473 O 14.001 56.416 35.609 1.00 15.41
ATOM 3608 CG2 THR A 473 O 13.750 57.337 33.427 1.00 15.24
ATOM 3609 N VAL A 474 O 16.000 60.195 34.081 1.00 18.57
ATOM 3610 CA VAL A 474 O 16.355 61.192 33.050 1.00 21.06
10 ATOM 3611 C VAL A 474 O 17.859 61.209 32.817 1.00 19.12
ATOM 3612 O VAL A 474 O 18.339 61.234 31.688 1.00 19.95
ATOM 3613 CB VAL A 474 O 15.860 62.616 33.424 1.00 22.91
ATOM 3614 CG1 VAL A 474 O 16.467 63.702 32.538 1.00 23.06
ATOM 3615 CG2 VAL A 474 O 14.346 62.721 33.334 1.00 23.04
15 ATOM 3616 N ASP A 475 O 18.647 61.175 33.886 1.00 19.20
ATOM 3617 CA ASP A 475 O 20.109 61.168 33.741 1.00 18.98
ATOM 3618 C ASP A 475 O 20.578 59.899 33.047 1.00 17.52
ATOM 3619 O ASP A 475 O 21.386 60.028 32.130 1.00 18.31
ATOM 3620 CB ASP A 475 O 20.780 61.273 35.119 1.00 20.27
20 ATOM 3621 CG ASP A 475 O 22.283 61.075 35.107 1.00 20.18
ATOM 3622 OD1 ASP A 475 O 22.950 61.889 34.431 1.00 21.73
ATOM 3623 OD2 ASP A 475 O 22.798 60.139 35.750 1.00 18.03
ATOM 3624 N ALA A 476 O 20.062 58.725 33.392 1.00 18.26
ATOM 3625 CA ALA A 476 O 20.539 57.486 32.793 1.00 18.93
25 ATOM 3626 C ALA A 476 O 20.165 57.269 31.343 1.00 20.62
ATOM 3627 O ALA A 476 O 20.845 56.502 30.661 1.00 22.64
ATOM 3628 CB ALA A 476 O 19.966 56.298 33.551 1.00 18.48
ATOM 3629 N ASN A 477 O 19.047 57.787 30.858 1.00 22.66
ATOM 3630 CA ASN A 477 O 18.605 57.512 29.491 1.00 25.22
30 ATOM 3631 C ASN A 477 O 18.578 58.782 28.683 1.00 28.55
ATOM 3632 O ASN A 477 O 17.969 59.755 29.143 1.00 30.20
ATOM 3633 CB ASN A 477 O 17.172 56.948 29.560 1.00 24.22
ATOM 3634 CG ASN A 477 O 17.114 55.666 30.380 1.00 23.73
ATOM 3635 OD1 ASN A 477 O 16.747 55.672 31.570 1.00 21.33
35 ATOM 3636 ND2 ASN A 477 O 17.512 54.575 29.736 1.00 20.87
ATOM 3637 N ASN A 478 O 19.208 58.878 27.514 1.00 31.69
ATOM 3638 CA ASN A 478 O 19.036 60.131 26.776 1.00 33.61
ATOM 3639 C ASN A 478 O 18.758 59.770 25.331 1.00 32.22

ATOM 3640 O ASN A 478 0 19.602 59.478 24.508 1.00 32.16
ATOM 3641 CB ASN A 478 0 20.086 61.194 27.017 1.00 38.57
ATOM 3642 CG ASN A 478 0 21.426 60.602 27.370 1.00 40.94
ATOM 3643 OD1 ASN A 478 0 21.928 59.903 26.484 1.00 44.60
5 ATOM 3644 ND2 ASN A 478 0 21.866 60.861 28.578 1.00 41.32
ATOM 3645 N PRO A 479 0 17.461 59.733 25.075 1.00 32.37
ATOM 3646 CA PRO A 479 0 16.890 59.381 23.790 1.00 31.84
ATOM 3647 C PRO A 479 0 17.268 60.448 22.776 1.00 32.35
ATOM 3648 O PRO A 479 0 17.422 61.609 23.136 1.00 32.66
10 ATOM 3649 CB PRO A 479 0 15.364 59.385 23.931 1.00 31.68
ATOM 3650 CG PRO A 479 0 15.126 59.724 25.373 1.00 31.69
ATOM 3651 CD PRO A 479 0 16.416 60.071 26.064 1.00 32.23
ATOM 3652 N PRO A 480 0 17.399 60.036 21.537 1.00 31.62
ATOM 3653 CA PRO A 480 0 17.670 60.939 20.422 1.00 30.72
15 ATOM 3654 C PRO A 480 0 16.452 61.827 20.225 1.00 30.37
ATOM 3655 O PRO A 480 0 15.362 61.525 20.733 1.00 29.47
ATOM 3656 CB PRO A 480 0 17.935 60.035 19.203 1.00 29.87
ATOM 3657 CG PRO A 480 0 17.111 58.811 19.590 1.00 30.44
ATOM 3658 CD PRO A 480 0 17.161 58.657 21.093 1.00 30.35
20 ATOM 3659 N VAL A 481 0 16.559 62.906 19.458 1.00 31.72
ATOM 3660 CA VAL A 481 0 15.398 63.788 19.268 1.00 30.68
ATOM 3661 C VAL A 481 0 14.335 63.090 18.446 1.00 29.51
ATOM 3662 O VAL A 481 0 13.134 63.284 18.648 1.00 27.97
ATOM 3663 CB VAL A 481 0 15.818 65.132 18.648 1.00 33.04
25 ATOM 3664 CG1 VAL A 481 0 16.126 65.010 17.161 1.00 31.91
ATOM 3665 CG2 VAL A 481 0 14.717 66.171 18.907 1.00 33.32
ATOM 3666 N GLU A 482 0 14.746 62.167 17.562 1.00 28.90
ATOM 3667 CA GLU A 482 0 13.755 61.402 16.803 1.00 29.62
ATOM 3668 C GLU A 482 0 12.839 60.565 17.691 1.00 28.33
30 ATOM 3669 O GLU A 482 0 11.704 60.287 17.280 1.00 28.36
ATOM 3670 CB GLU A 482 0 14.449 60.498 15.788 1.00 30.63
ATOM 3671 CG GLU A 482 0 15.143 61.256 14.666 1.00 32.78
ATOM 3672 CD GLU A 482 0 16.522 61.784 14.990 1.00 34.96
ATOM 3673 OE1 GLU A 482 0 17.021 61.746 16.141 1.00 34.62
35 ATOM 3674 OE2 GLU A 482 0 17.170 62.297 14.033 1.00 37.13
ATOM 3675 N TRP A 483 0 13.311 60.124 18.857 1.00 25.91
ATOM 3676 CA TRP A 483 0 12.496 59.280 19.711 1.00 25.49
ATOM 3677 C TRP A 483 0 11.224 60.011 20.125 1.00 26.47

ATOM 3678 O TRP A 483 0 10.155 59.405 20.116 1.00 26.95
ATOM 3679 CB TRP A 483 0 13.216 58.807 20.974 1.00 21.98
ATOM 3680 CG TRP A 483 0 12.376 58.144 22.013 1.00 21.49
ATOM 3681 CD1 TRP A 483 0 11.960 56.827 22.003 1.00 20.81
5 ATOM 3682 CD2 TRP A 483 0 11.818 58.730 23.194 1.00 20.14
ATOM 3683 NE1 TRP A 483 0 11.187 56.575 23.143 1.00 20.29
ATOM 3684 CE2 TRP A 483 0 11.097 57.736 23.868 1.00 20.29
ATOM 3685 CE3 TRP A 483 0 11.875 60.006 23.754 1.00 21.32
ATOM 3686 CZ2 TRP A 483 0 10.422 57.973 25.062 1.00 20.89
10 ATOM 3687 CZ3 TRP A 483 0 11.217 60.248 24.946 1.00 20.78
ATOM 3688 CH2 TRP A 483 0 10.495 59.227 25.596 1.00 21.44
ATOM 3689 N ALA A 484 0 11.342 61.261 20.560 1.00 28.59
ATOM 3690 CA ALA A 484 0 10.165 62.003 21.029 1.00 30.73
ATOM 3691 C ALA A 484 0 9.226 62.350 19.869 1.00 30.42
15 ATOM 3692 O ALA A 484 0 8.024 62.337 20.071 1.00 31.34
ATOM 3693 CB ALA A 484 0 10.583 63.244 21.806 1.00 31.05
ATOM 3694 N GLN A 485 0 9.702 62.488 18.653 1.00 30.79
ATOM 3695 CA GLN A 485 0 8.927 62.742 17.466 1.00 33.16
ATOM 3696 C GLN A 485 0 8.026 61.608 17.017 1.00 32.81
20 ATOM 3697 O GLN A 485 0 7.044 61.847 16.302 1.00 32.74
ATOM 3698 CB GLN A 485 0 9.859 63.113 16.290 1.00 34.56
ATOM 3699 CG GLN A 485 0 10.631 64.361 16.686 1.00 39.67
ATOM 3700 CD GLN A 485 0 11.559 64.919 15.640 1.00 42.86
ATOM 3701 OE1 GLN A 485 0 11.528 66.145 15.434 1.00 45.48
25 ATOM 3702 NE2 GLN A 485 0 12.375 64.103 14.982 1.00 44.07
ATOM 3703 N LEU A 486 0 8.328 60.380 17.443 1.00 30.46
ATOM 3704 CA LEU A 486 0 7.500 59.231 17.095 1.00 27.76
ATOM 3705 C LEU A 486 0 6.051 59.510 17.509 1.00 28.23
ATOM 3706 O LEU A 486 0 5.100 59.331 16.752 1.00 26.71
30 ATOM 3707 CB LEU A 486 0 8.043 58.034 17.838 1.00 25.03
ATOM 3708 CG LEU A 486 0 8.988 57.012 17.226 1.00 24.18
ATOM 3709 CD1 LEU A 486 0 9.780 57.416 16.011 1.00 21.41
ATOM 3710 CD2 LEU A 486 0 9.864 56.464 18.342 1.00 23.28
ATOM 3711 N CYS A 487 0 5.870 59.974 18.739 1.00 28.05
35 ATOM 3712 CA CYS A 487 0 4.560 60.263 19.279 1.00 30.77
ATOM 3713 C CYS A 487 0 3.823 61.350 18.499 1.00 33.19
ATOM 3714 O CYS A 487 0 2.627 61.170 18.263 1.00 33.69
ATOM 3715 CB CYS A 487 0 4.643 60.637 20.752 1.00 27.94

ATOM 3716 SG CYS A 487 O 5.214 59.280 21.781 1.00 27.23
ATOM 3717 N GLU A 488 O 4.543 62.373 18.064 1.00 35.80
ATOM 3718 CA GLU A 488 O 3.871 63.458 17.334 1.00 39.12
ATOM 3719 C GLU A 488 O 3.384 62.928 15.995 1.00 37.78
5 ATOM 3720 O GLU A 488 O 2.186 63.025 15.711 1.00 37.61
ATOM 3721 CB GLU A 488 O 4.737 64.697 17.257 1.00 42.04
ATOM 3722 CG GLU A 488 O 5.667 64.822 16.064 1.00 47.75
ATOM 3723 CD GLU A 488 O 5.634 66.239 15.500 1.00 51.36
ATOM 3724 OE1 GLU A 488 O 5.501 66.422 14.266 1.00 52.66
10 ATOM 3725 OE2 GLU A 488 O 5.743 67.154 16.358 1.00 53.40
ATOM 3726 N ILE A 489 O 4.263 62.253 15.267 1.00 36.63
ATOM 3727 CA ILE A 489 O 3.906 61.647 14.004 1.00 36.74
ATOM 3728 C ILE A 489 O 2.754 60.662 14.113 1.00 36.98
ATOM 3729 O ILE A 489 O 1.847 60.664 13.276 1.00 38.60
15 ATOM 3730 CB ILE A 489 O 5.089 60.903 13.361 1.00 36.57
ATOM 3731 CG1 ILE A 489 O 6.267 61.853 13.148 1.00 36.46
ATOM 3732 CG2 ILE A 489 O 4.651 60.305 12.030 1.00 36.90
ATOM 3733 CD1 ILE A 489 O 7.535 61.194 12.654 1.00 35.62
ATOM 3734 N TYR A 490 O 2.758 59.808 15.105 1.00 36.22
20 ATOM 3735 CA TYR A 490 O 1.771 58.765 15.298 1.00 35.95
ATOM 3736 C TYR A 490 O 0.413 59.314 15.692 1.00 37.83
ATOM 3737 O TYR A 490 O -0.581 58.816 15.165 1.00 39.24
ATOM 3738 CB TYR A 490 O 2.206 57.817 16.409 1.00 32.47
ATOM 3739 CG TYR A 490 O 1.314 56.641 16.663 1.00 30.55
25 ATOM 3740 CD1 TYR A 490 O 1.176 55.623 15.726 1.00 29.96
ATOM 3741 CD2 TYR A 490 O 0.610 56.536 17.849 1.00 29.79
ATOM 3742 CE1 TYR A 490 O 0.378 54.528 15.975 1.00 29.51
ATOM 3743 CE2 TYR A 490 O -0.192 55.441 18.114 1.00 29.64
ATOM 3744 CZ TYR A 490 O -0.288 54.445 17.171 1.00 29.51
30 ATOM 3745 OH TYR A 490 O -1.101 53.363 17.437 1.00 32.06
ATOM 3746 N ASP A 491 O 0.369 60.302 16.564 1.00 40.86
ATOM 3747 CA ASP A 491 O -0.909 60.887 16.963 1.00 43.97
ATOM 3748 C ASP A 491 O -1.586 61.633 15.811 1.00 45.30
ATOM 3749 O ASP A 491 O -2.809 61.752 15.820 1.00 45.60
35 ATOM 3750 CB ASP A 491 O -0.764 61.800 18.170 1.00 44.67
ATOM 3751 CG ASP A 491 O -0.441 61.101 19.475 1.00 45.90
ATOM 3752 OD1 ASP A 491 O 0.149 61.761 20.364 1.00 46.32
ATOM 3753 OD2 ASP A 491 O -0.763 59.911 19.669 1.00 46.04

ATOM 3754 N ASP A 492 0 -0.871 62.107 14.817 1.00 46.75
ATOM 3755 CA ASP A 492 0 -1.323 62.804 13.653 1.00 48.98
ATOM 3756 C ASP A 492 0 -1.702 61.936 12.460 1.00 49.48
ATOM 3757 O ASP A 492 0 -2.002 62.458 11.378 1.00 50.24
5 ATOM 3758 CB ASP A 492 0 -0.155 63.649 13.107 1.00 51.54
ATOM 3759 CG ASP A 492 0 -0.168 65.081 13.587 1.00 53.57
ATOM 3760 OD1 ASP A 492 0 -0.886 65.375 14.570 1.00 54.07
ATOM 3761 OD2 ASP A 492 0 0.576 65.857 12.939 1.00 55.04
ATOM 3762 N LEU A 493 0 -1.554 60.630 12.584 1.00 49.01
10 ATOM 3763 CA LEU A 493 0 -1.896 59.732 11.483 1.00 47.63
ATOM 3764 C LEU A 493 0 -3.377 59.872 11.137 1.00 47.61
ATOM 3765 O LEU A 493 0 -4.209 60.018 12.027 1.00 47.02
ATOM 3766 CB LEU A 493 0 -1.661 58.296 11.940 1.00 46.08
ATOM 3767 CG LEU A 493 0 -0.485 57.463 11.464 1.00 45.24
15 ATOM 3768 CD1 LEU A 493 0 0.616 58.224 10.756 1.00 43.57
ATOM 3769 CD2 LEU A 493 0 0.075 56.710 12.669 1.00 44.62
ATOM 3770 N PRO A 494 0 -3.694 59.763 9.866 1.00 48.01
ATOM 3771 CA PRO A 494 0 -5.049 59.734 9.353 1.00 49.11
ATOM 3772 C PRO A 494 0 -5.617 58.339 9.570 1.00 51.21
20 ATOM 3773 O PRO A 494 0 -4.919 57.325 9.495 1.00 50.61
ATOM 3774 CB PRO A 494 0 -4.938 59.995 7.843 1.00 48.94
ATOM 3775 CG PRO A 494 0 -3.559 59.463 7.544 1.00 48.47
ATOM 3776 CD PRO A 494 0 -2.714 59.538 8.797 1.00 48.22
ATOM 3777 N PRO A 495 0 -6.915 58.238 9.796 1.00 53.24
25 ATOM 3778 CA PRO A 495 0 -7.630 57.006 10.055 1.00 53.93
ATOM 3779 C PRO A 495 0 -7.404 55.890 9.058 1.00 54.84
ATOM 3780 O PRO A 495 0 -7.348 54.705 9.423 1.00 55.08
ATOM 3781 CB PRO A 495 0 -9.126 57.362 10.146 1.00 54.40
ATOM 3782 CG PRO A 495 0 -9.090 58.848 10.391 1.00 54.17
30 ATOM 3783 CD PRO A 495 0 -7.787 59.420 9.895 1.00 53.58
ATOM 3784 N GLU A 496 0 -7.190 56.198 7.784 1.00 55.36
ATOM 3785 CA GLU A 496 0 -6.936 55.187 6.763 1.00 55.83
ATOM 3786 C GLU A 496 0 -5.582 54.521 6.971 1.00 54.09
ATOM 3787 O GLU A 496 0 -5.345 53.406 6.505 1.00 53.29
35 ATOM 3788 CB GLU A 496 0 -7.091 55.805 5.378 1.00 57.96
ATOM 3789 CG GLU A 496 0 -6.030 55.604 4.339 1.00 61.30
ATOM 3790 CD GLU A 496 0 -6.448 54.984 3.025 1.00 63.68
ATOM 3791 OE1 GLU A 496 0 -7.449 55.411 2.388 1.00 65.15

ATOM 3792 OE2 GLU A 496 0 -5.747 54.034 2.586 1.00 64.91
ATOM 3793 N ALA A 497 0 -4.665 55.217 7.630 1.00 52.35
ATOM 3794 CA ALA A 497 0 -3.326 54.738 7.886 1.00 50.83
ATOM 3795 C ALA A 497 0 -3.245 53.626 8.924 1.00 49.08
5 ATOM 3796 O ALA A 497 0 -2.361 52.773 8.794 1.00 47.61
ATOM 3797 CB ALA A 497 0 -2.443 55.910 8.317 1.00 51.23
ATOM 3798 N THR A 498 0 -4.113 53.630 9.926 1.00 48.01
ATOM 3799 CA THR A 498 0 -4.086 52.617 10.964 1.00 48.73
ATOM 3800 C THR A 498 0 -5.271 51.656 10.938 1.00 48.99
10 ATOM 3801 O THR A 498 0 -5.425 50.852 11.862 1.00 47.81
ATOM 3802 CB THR A 498 0 -4.055 53.223 12.388 1.00 49.04
ATOM 3803 OG1 THR A 498 0 -5.315 53.816 12.752 1.00 47.95
ATOM 3804 CG2 THR A 498 0 -2.919 54.223 12.514 1.00 48.94
ATOM 3805 N SER A 499 0 -6.101 51.756 9.911 1.00 49.78
15 ATOM 3806 CA SER A 499 0 -7.307 50.933 9.814 1.00 51.20
ATOM 3807 C SER A 499 0 -7.048 49.470 9.494 1.00 49.98
ATOM 3808 O SER A 499 0 -6.257 49.143 8.617 1.00 48.80
ATOM 3809 CB SER A 499 0 -8.223 51.606 8.800 1.00 52.62
ATOM 3810 OG SER A 499 0 -8.428 50.827 7.596 1.00 55.22
20 ATOM 3811 N ILE A 500 0 -7.706 48.585 10.230 1.00 50.08
ATOM 3812 CA ILE A 500 0 -7.563 47.151 10.077 1.00 51.25
ATOM 3813 C ILE A 500 0 -8.642 46.518 9.207 1.00 53.08
ATOM 3814 O ILE A 500 0 -9.785 46.351 9.639 1.00 54.00
ATOM 3815 CB ILE A 500 0 -7.631 46.428 11.436 1.00 50.61
25 ATOM 3816 CG1 ILE A 500 0 -6.475 46.866 12.336 1.00 50.22
ATOM 3817 CG2 ILE A 500 0 -7.619 44.907 11.302 1.00 50.34
ATOM 3818 CD1 ILE A 500 0 -6.806 46.617 13.800 1.00 50.52
ATOM 3819 N GLN A 501 0 -8.263 46.074 8.024 1.00 54.35
ATOM 3820 CA GLN A 501 0 -9.177 45.360 7.129 1.00 55.14
30 ATOM 3821 C GLN A 501 0 -9.298 43.904 7.564 1.00 55.85
ATOM 3822 O GLN A 501 0 -8.335 43.130 7.556 1.00 55.59
ATOM 3823 CB GLN A 501 0 -8.594 45.485 5.732 1.00 55.56
ATOM 3824 CG GLN A 501 0 -9.262 44.736 4.604 1.00 56.32
ATOM 3825 CD GLN A 501 0 -8.874 45.369 3.271 1.00 57.46
35 ATOM 3826 OE1 GLN A 501 0 -8.480 44.667 2.336 1.00 57.35
ATOM 3827 NE2 GLN A 501 0 -8.998 46.697 3.219 1.00 57.61
ATOM 3828 N THR A 502 0 -10.493 43.506 7.968 1.00 57.08
ATOM 3829 CA THR A 502 0 -10.788 42.146 8.401 1.00 58.28

ATOM 3830 C THR A 502 0 -10.966 41.205 7.216 1.00 58.80
ATOM 3831 O THR A 502 0 -11.199 41.604 6.074 1.00 58.71
ATOM 3832 CB THR A 502 0 -12.046 42.108 9.293 1.00 58.99
ATOM 3833 OG1 THR A 502 0 -11.794 42.909 10.464 1.00 59.62
5 ATOM 3834 CG2 THR A 502 0 -12.421 40.707 9.749 1.00 58.74
ATOM 3835 N VAL A 503 0 -10.746 39.922 7.471 1.00 59.20
ATOM 3836 CA VAL A 503 0 -10.904 38.877 6.468 1.00 60.27
ATOM 3837 C VAL A 503 0 -11.687 37.736 7.119 1.00 61.11
ATOM 3838 O VAL A 503 0 -11.606 37.563 8.341 1.00 61.03
10 ATOM 3839 CB VAL A 503 0 -9.589 38.430 5.823 1.00 59.97
ATOM 3840 CG1 VAL A 503 0 -8.337 38.964 6.507 1.00 59.65
ATOM 3841 CG2 VAL A 503 0 -9.467 36.914 5.722 1.00 59.97
ATOM 3842 N VAL A 504 0 -12.478 37.002 6.341 1.00 61.77
ATOM 3843 CA VAL A 504 0 -13.203 35.863 6.911 1.00 62.40
15 ATOM 3844 C VAL A 504 0 -12.673 34.579 6.259 1.00 62.99
ATOM 3845 O VAL A 504 0 -11.811 33.894 6.803 1.00 63.13
ATOM 3846 CB VAL A 504 0 -14.730 35.882 6.756 1.00 62.39
ATOM 3847 CG1 VAL A 504 0 -15.392 36.931 7.635 1.00 61.89
ATOM 3848 CG2 VAL A 504 0 -15.127 36.068 5.297 1.00 62.17
20 ATOM 3849 C1 NAG A 800 0 -2.401 42.835 45.802 1.00 30.44
ATOM 3850 C2 NAG A 800 0 -1.327 43.232 46.780 1.00 31.80
ATOM 3851 N2 NAG A 800 0 -0.119 43.561 45.983 1.00 31.37
ATOM 3852 C7 NAG A 800 0 0.179 44.844 45.683 1.00 32.37
ATOM 3853 O7 NAG A 800 0 -0.549 45.688 45.982 1.00 34.61
25 ATOM 3854 C8 NAG A 800 0 1.457 45.094 44.983 1.00 31.67
ATOM 3855 C3 NAG A 800 0 -1.015 42.187 47.801 1.00 32.94
ATOM 3856 O3 NAG A 800 0 -0.264 42.838 48.796 1.00 34.46
ATOM 3857 C4 NAG A 800 0 -2.351 41.662 48.377 1.00 34.05
ATOM 3858 O4 NAG A 800 0 -2.097 40.644 49.344 1.00 35.62
30 ATOM 3859 C5 NAG A 800 0 -3.128 41.025 47.202 1.00 35.11
ATOM 3860 O5 NAG A 800 0 -3.466 42.046 46.295 1.00 33.06
ATOM 3861 C6 NAG A 800 0 -4.444 40.420 47.673 1.00 36.66
ATOM 3862 O6 NAG A 800 0 -5.199 41.411 48.288 1.00 39.73
ATOM 3863 C1 GLC A 900 0 -8.957 50.280 6.333 1.00 58.53
35 ATOM 3864 C2 GLC A 900 0 -8.500 49.605 5.037 1.00 59.25
ATOM 3865 C3 GLC A 900 0 -7.806 50.686 4.219 1.00 59.71
ATOM 3866 C4 GLC A 900 0 -8.691 51.905 3.987 1.00 60.13
ATOM 3867 C5 GLC A 900 0 -9.595 52.289 5.142 1.00 59.22

ATOM 3868 OS GLC A 900 0 -10.004 51.177 5.937 1.00 59.71
ATOM 3869 CU IUM B 1 0 -1.332 34.401 30.132 1.00 29.47
ATOM 3870 CU IUM B 2 0 7.297 42.245 26.618 1.00 27.01
ATOM 3871 CU IUM B 3 0 9.569 38.786 23.923 1.00 21.38
5 ATOM 3872 O IUM B 5 0 7.445 40.703 25.162 1.00 26.99
ATOM 3873 OW0 WAT W 1 0 19.509 36.893 30.054 1.00 13.07
ATOM 3874 OW0 WAT W 2 0 24.726 29.672 16.651 1.00 7.67
ATOM 3875 OW0 WAT W 3 0 15.295 17.988 35.061 1.00 8.65
ATOM 3876 OW0 WAT W 4 0 6.481 28.311 23.427 1.00 8.00
10 ATOM 3877 OW0 WAT W 5 0 14.921 45.178 24.306 1.00 17.04
ATOM 3878 OW0 WAT W 6 0 14.413 44.401 28.162 1.00 10.12
ATOM 3879 OW0 WAT W 7 0 9.967 21.576 9.620 1.00 11.43
ATOM 3880 OW0 WAT W 8 0 10.088 28.675 13.038 1.00 9.27
ATOM 3881 OW0 WAT W 9 0 9.808 47.902 28.959 1.00 12.71
15 ATOM 3882 OW0 WAT W 10 0 21.976 23.052 35.604 1.00 11.72
ATOM 3883 OW0 WAT W 11 0 10.862 25.744 29.928 1.00 10.21
ATOM 3884 OW0 WAT W 12 0 26.087 32.996 23.097 1.00 14.21
ATOM 3885 OW0 WAT W 13 0 22.256 58.745 37.931 1.00 17.85
ATOM 3886 OW0 WAT W 14 0 -0.104 29.831 35.249 1.00 16.36
20 ATOM 3887 OW0 WAT W 15 0 18.153 61.857 36.641 1.00 14.38
ATOM 3888 OW0 WAT W 16 0 9.426 38.431 9.161 1.00 15.35
ATOM 3889 OW0 WAT W 17 0 7.639 24.371 3.713 1.00 22.18
ATOM 3890 OW0 WAT W 18 0 27.977 11.643 9.481 1.00 19.22
ATOM 3891 OW0 WAT W 19 0 3.140 21.028 24.695 1.00 11.12
25 ATOM 3892 OW0 WAT W 20 0 9.847 20.701 30.902 1.00 16.16
ATOM 3893 OW0 WAT W 21 0 -1.517 29.009 43.180 1.00 27.18
ATOM 3894 OW0 WAT W 22 0 3.497 29.138 26.088 1.00 17.22
ATOM 3895 OW0 WAT W 23 0 20.614 32.765 40.433 1.00 17.63
ATOM 3896 OW0 WAT W 24 0 19.098 51.778 39.452 1.00 22.33
30 ATOM 3897 OW0 WAT W 25 0 0.977 21.396 5.064 1.00 18.54
ATOM 3898 OW0 WAT W 26 0 8.546 16.150 21.761 1.00 16.40
ATOM 3899 OW0 WAT W 27 0 6.102 19.858 10.350 1.00 17.79
ATOM 3900 OW0 WAT W 28 0 11.702 55.189 41.955 1.00 18.92
ATOM 3901 OW0 WAT W 29 0 3.360 42.251 18.209 1.00 16.26
35 ATOM 3902 OW0 WAT W 30 0 6.232 14.672 22.473 1.00 24.49
ATOM 3903 OW0 WAT W 31 0 16.729 26.542 39.731 1.00 15.28
ATOM 3904 OW0 WAT W 32 0 2.834 30.640 40.601 1.00 18.11
ATOM 3905 OW0 WAT W 33 0 21.893 42.837 27.884 1.00 15.08

	ATOM	3906	OW0	WAT	W	34	0	1.581	28.193	27.914	1.00	17.77
	ATOM	3907	OW0	WAT	W	35	0	-3.503	21.749	11.578	1.00	15.32
	ATOM	3908	OW0	WAT	W	36	0	7.131	33.344	11.786	1.00	18.18
	ATOM	3909	OW0	WAT	W	37	0	17.312	38.603	29.961	1.00	14.75
5	ATOM	3910	OW0	WAT	W	38	0	-6.705	40.723	39.909	1.00	23.49
	ATOM	3911	OW0	WAT	W	39	0	9.010	31.121	11.736	1.00	19.99
	ATOM	3912	OW0	WAT	W	40	0	9.376	28.353	33.076	1.00	16.22
	ATOM	3913	OW0	WAT	W	41	0	30.104	29.895	20.857	1.00	25.77
	ATOM	3914	OW0	WAT	W	42	0	-6.950	33.663	21.335	1.00	26.62
10	ATOM	3915	OW0	WAT	W	43	0	8.541	27.867	36.827	1.00	12.80
	ATOM	3916	OW0	WAT	W	44	0	3.590	21.651	11.893	1.00	14.46
	ATOM	3917	OW0	WAT	W	45	0	23.290	21.665	37.787	1.00	28.75
	ATOM	3918	OW0	WAT	W	46	0	22.724	11.873	22.270	1.00	23.07
	ATOM	3919	OW0	WAT	W	47	0	-1.090	42.001	12.877	1.00	19.33
15	ATOM	3920	OW0	WAT	W	48	0	14.091	27.298	40.583	1.00	18.51
	ATOM	3921	OW0	WAT	W	49	0	2.336	52.026	29.983	1.00	25.66
	ATOM	3922	OW0	WAT	W	50	0	15.475	14.450	22.853	1.00	20.37
	ATOM	3923	OW0	WAT	W	51	0	25.945	26.568	40.287	1.00	24.49
	ATOM	3924	OW0	WAT	W	52	0	19.545	41.598	35.087	1.00	20.70
20	ATOM	3925	OW0	WAT	W	53	0	-3.802	47.942	9.638	1.00	29.98
	ATOM	3926	OW0	WAT	W	54	0	-7.478	41.160	9.585	1.00	24.26
	ATOM	3927	OW0	WAT	W	55	0	-2.938	29.733	36.048	1.00	22.93
	ATOM	3928	OW0	WAT	W	56	0	29.051	32.114	22.680	1.00	22.50
	ATOM	3929	OW0	WAT	W	57	0	0.360	29.505	5.595	1.00	17.78
25	ATOM	3930	OW0	WAT	W	58	0	8.583	57.422	21.440	1.00	21.90
	ATOM	3931	OW0	WAT	W	59	0	25.151	31.947	34.812	1.00	22.13
	ATOM	3932	OW0	WAT	W	60	0	25.133	62.204	32.968	1.00	25.75
	ATOM	3933	OW0	WAT	W	61	0	14.909	40.770	30.294	1.00	17.25
	ATOM	3934	OW0	WAT	W	62	0	20.825	30.520	34.676	1.00	16.18
30	ATOM	3935	OW0	WAT	W	63	0	5.509	26.744	43.167	1.00	30.12
	ATOM	3936	OW0	WAT	W	64	0	5.280	57.279	14.627	1.00	22.66
	ATOM	3937	OW0	WAT	W	65	0	2.944	53.436	32.359	1.00	22.97
	ATOM	3938	OW0	WAT	W	66	0	11.266	43.508	3.407	1.00	20.01
	ATOM	3939	OW0	WAT	W	67	0	21.535	45.549	26.563	1.00	24.47
35	ATOM	3940	OW0	WAT	W	68	0	0.412	33.358	11.837	1.00	19.89
	ATOM	3941	OW0	WAT	W	69	0	26.466	32.305	25.785	1.00	20.19
	ATOM	3942	OW0	WAT	W	70	0	0.910	45.068	7.829	1.00	22.05
	ATOM	3943	OW0	WAT	W	71	0	-2.060	46.506	39.381	1.00	23.49

	ATOM	3944	OW0	WAT	W	72	0	20.236	56.718	25.851	1.00	23.74
	ATOM	3945	OW0	WAT	W	73	0	3.253	23.017	38.254	1.00	24.83
	ATOM	3946	OW0	WAT	W	74	0	9.653	22.835	35.143	1.00	25.79
	ATOM	3947	OW0	WAT	W	75	0	16.877	52.904	47.331	1.00	24.42
5	ATOM	3948	OW0	WAT	W	76	0	14.293	22.021	3.993	1.00	32.28
	ATOM	3949	OW0	WAT	W	77	0	-5.287	19.835	18.528	1.00	24.65
	ATOM	3950	OW0	WAT	W	78	0	8.414	38.317	49.069	1.00	28.77
	ATOM	3951	OW0	WAT	W	79	0	7.070	32.466	47.926	1.00	21.83
	ATOM	3952	OW0	WAT	W	80	0	-0.452	28.307	25.779	1.00	16.58
10	ATOM	3953	OW0	WAT	W	81	0	14.774	15.006	34.455	1.00	25.63
	ATOM	3954	OW0	WAT	W	82	0	11.515	54.942	35.962	1.00	14.20
	ATOM	3955	OW0	WAT	W	83	0	25.643	33.451	32.105	1.00	30.31
	ATOM	3956	OW0	WAT	W	84	0	11.869	12.221	20.394	1.00	31.37
	ATOM	3957	OW0	WAT	W	85	0	11.653	51.587	22.411	1.00	16.48
15	ATOM	3958	OW0	WAT	W	86	0	17.334	40.837	51.079	1.00	30.26
	ATOM	3959	OW0	WAT	W	87	0	4.355	25.208	34.030	1.00	32.26
	ATOM	3960	OW0	WAT	W	88	0	18.816	52.360	32.512	1.00	21.19
	ATOM	3961	OW0	WAT	W	89	0	-2.704	46.518	35.364	1.00	21.99
	ATOM	3962	OW0	WAT	W	90	0	18.793	27.893	49.481	1.00	24.52
20	ATOM	3963	OW0	WAT	W	91	0	22.459	46.584	28.898	1.00	18.99
	ATOM	3964	OW0	WAT	W	92	0	7.958	34.422	49.370	1.00	26.14
	ATOM	3965	OW0	WAT	W	93	0	23.972	16.246	6.806	1.00	24.35
	ATOM	3966	OW0	WAT	W	94	0	1.340	49.185	26.307	1.00	31.64
	ATOM	3967	OW0	WAT	W	95	0	-1.830	35.291	12.266	1.00	27.28
25	ATOM	3968	OW0	WAT	W	96	0	20.460	17.486	3.589	1.00	33.51
	ATOM	3969	OW0	WAT	W	97	0	15.177	6.964	9.868	1.00	24.40
	ATOM	3970	OW0	WAT	W	98	0	18.616	57.927	43.922	1.00	30.76
	ATOM	3971	OW0	WAT	W	99	0	10.562	32.112	9.972	1.00	28.90
	ATOM	3972	OW0	WAT	W	100	0	1.630	61.363	10.878	1.00	33.92
30	ATOM	3973	OW0	WAT	W	101	0	-4.939	49.989	33.211	1.00	29.73
	ATOM	3974	OW0	WAT	W	102	0	19.385	44.813	34.546	1.00	23.52
	ATOM	3975	OW0	WAT	W	103	0	19.055	43.063	37.581	1.00	30.59
	ATOM	3976	OW0	WAT	W	105	0	28.703	33.555	27.406	1.00	32.92
	ATOM	3977	OW0	WAT	W	106	0	28.835	19.646	10.759	1.00	40.44
35	ATOM	3978	OW0	WAT	W	107	0	22.047	22.465	9.758	1.00	29.98
	ATOM	3979	OW0	WAT	W	108	0	14.689	61.032	36.346	1.00	30.63
	ATOM	3980	OW0	WAT	W	109	0	16.998	24.042	9.318	1.00	23.90
	ATOM	3981	OW0	WAT	W	110	0	13.472	30.533	11.848	1.00	34.83

	ATOM	3982	OW0	WAT	W	111	0	-2.175	35.601	41.496	1.00	28.55
	ATOM	3983	OW0	WAT	W	112	0	1.528	17.373	-1.396	1.00	38.21
	ATOM	3984	OW0	WAT	W	113	0	-2.856	29.748	19.681	1.00	30.55
	ATOM	3985	OW0	WAT	W	114	0	2.377	42.810	47.971	1.00	26.87
5	ATOM	3986	OW0	WAT	W	115	0	10.947	12.820	33.745	1.00	31.60
	ATOM	3987	OW0	WAT	W	116	0	9.807	58.194	12.442	1.00	29.63
	ATOM	3988	OW0	WAT	W	117	0	18.488	62.559	29.470	1.00	45.83
	ATOM	3989	OW0	WAT	W	118	0	11.708	61.566	40.940	1.00	37.19
	ATOM	3990	OW0	WAT	W	119	0	-10.101	22.257	15.091	1.00	30.48
10	ATOM	3991	OW0	WAT	W	120	0	-1.930	15.913	7.386	1.00	36.63
	ATOM	3992	OW0	WAT	W	121	0	23.988	43.686	29.319	1.00	32.15
	ATOM	3993	OW0	WAT	W	122	0	7.354	57.153	12.809	1.00	28.10
	ATOM	3994	OW0	WAT	W	123	0	24.207	22.101	11.958	1.00	32.83
	ATOM	3995	OW0	WAT	W	124	0	-1.268	15.083	9.738	1.00	32.53
15	ATOM	3996	OW0	WAT	W	125	0	19.363	5.047	13.812	1.00	34.57
	ATOM	3997	OW0	WAT	W	126	0	4.799	41.145	23.688	1.00	28.33
	ATOM	3998	OW0	WAT	W	127	0	15.975	23.287	5.889	1.00	30.95
	ATOM	3999	OW0	WAT	W	128	0	3.698	38.582	-2.369	1.00	36.84
	ATOM	4000	OW0	WAT	W	129	0	-2.601	49.124	11.710	1.00	28.91
20	ATOM	4001	OW0	WAT	W	130	0	15.779	56.598	43.285	1.00	27.76
	ATOM	4002	OW0	WAT	W	131	0	26.306	32.724	13.233	1.00	37.94
	ATOM	4003	OW0	WAT	W	132	0	3.610	46.947	23.991	1.00	35.49
	ATOM	4004	OW0	WAT	W	133	0	18.354	11.929	29.348	1.00	33.88
	ATOM	4005	OW0	WAT	W	134	0	13.966	41.517	27.765	1.00	18.02
25	ATOM	4006	OW0	WAT	W	135	0	23.545	49.080	27.785	1.00	25.21
	ATOM	4007	OW0	WAT	W	136	0	16.876	25.082	41.791	1.00	28.71
	ATOM	4008	OW0	WAT	W	137	0	15.439	54.809	45.527	1.00	35.30
	ATOM	4009	OW0	WAT	W	138	0	11.733	25.676	43.264	1.00	38.24
	ATOM	4010	OW0	WAT	W	139	0	9.795	34.460	11.898	1.00	31.61
30	ATOM	4011	OW0	WAT	W	140	0	13.328	57.569	42.356	1.00	30.66
	ATOM	4012	OW0	WAT	W	141	0	14.146	7.869	20.604	1.00	35.72
	ATOM	4013	OW0	WAT	W	142	0	23.330	12.948	3.922	1.00	29.83
	ATOM	4014	OW0	WAT	W	143	0	16.607	10.575	24.347	1.00	36.47
	ATOM	4015	OW0	WAT	W	144	0	8.509	25.546	35.012	1.00	35.43
35	ATOM	4016	OW0	WAT	W	145	0	12.597	44.457	1.450	1.00	39.54
	ATOM	4017	OW0	WAT	W	146	0	21.680	51.509	39.154	1.00	40.08
	ATOM	4018	OW0	WAT	W	147	0	-0.702	52.593	39.700	1.00	29.62
	ATOM	4019	OW0	WAT	W	148	0	23.269	14.719	22.589	1.00	30.24

	ATOM	4020	OW0	WAT	W	149	0	27.149	22.972	41.846	1.00	35.00
	ATOM	4021	OW0	WAT	W	150	0	2.854	9.792	8.923	1.00	46.35
	ATOM	4022	OW0	WAT	W	151	0	24.831	15.672	24.889	1.00	29.22
	ATOM	4023	OW0	WAT	W	152	0	24.965	51.606	19.113	1.00	32.19
5	ATOM	4024	OW0	WAT	W	153	0	-4.611	25.034	37.817	1.00	46.51
	ATOM	4025	OW0	WAT	W	154	0	12.225	39.382	28.864	1.00	25.42
	ATOM	4026	OW0	WAT	W	155	0	18.332	22.341	43.180	1.00	36.18
	ATOM	4027	OW0	WAT	W	156	0	36.467	20.701	17.144	1.00	44.13
	ATOM	4028	OW0	WAT	W	157	0	-4.903	47.901	40.886	1.00	33.97
10	ATOM	4029	OW0	WAT	W	158	0	12.979	13.955	3.208	1.00	33.60
	ATOM	4030	OW0	WAT	W	159	0	32.383	12.693	24.743	1.00	30.25
	ATOM	4031	OW0	WAT	W	160	0	30.796	26.296	14.368	1.00	44.37
	ATOM	4032	OW0	WAT	W	161	0	19.332	37.280	40.057	1.00	31.54
	ATOM	4033	OW0	WAT	W	162	0	17.625	20.028	41.642	1.00	45.88
15	ATOM	4034	OW0	WAT	W	163	0	19.917	56.115	46.103	1.00	40.37
	ATOM	4035	OW0	WAT	W	164	0	-4.743	14.204	16.748	1.00	40.86
	ATOM	4036	OW0	WAT	W	165	0	0.738	46.912	21.790	1.00	38.56
	ATOM	4037	OW0	WAT	W	166	0	22.648	62.277	30.976	1.00	24.37
	ATOM	4038	OW0	WAT	W	167	0	-4.322	45.754	26.894	1.00	48.97
20	ATOM	4039	OW0	WAT	W	168	0	-2.386	24.601	0.665	1.00	32.57
	ATOM	4040	OW0	WAT	W	169	0	-0.459	41.618	35.838	1.00	35.25
	ATOM	4041	OW0	WAT	W	170	0	26.659	4.722	11.434	1.00	41.25
	ATOM	4042	OW0	WAT	W	171	0	13.720	11.379	22.121	1.00	39.59
	ATOM	4043	OW0	WAT	W	172	0	15.266	7.451	6.576	1.00	41.71
25	ATOM	4044	OW0	WAT	W	173	0	0.134	17.450	6.165	1.00	42.12
	ATOM	4045	OW0	WAT	W	174	0	38.646	32.884	25.247	1.00	41.80
	ATOM	4046	OW0	WAT	W	175	0	10.591	17.398	3.251	1.00	29.37
	ATOM	4047	OW0	WAT	W	176	0	22.444	49.424	25.264	1.00	19.51
	ATOM	4048	OW0	WAT	W	177	0	0.429	23.224	28.598	1.00	33.54
30	ATOM	4049	OW0	WAT	W	178	0	-2.302	27.278	34.780	1.00	44.76
	ATOM	4050	OW0	WAT	W	179	0	2.054	25.866	16.462	1.00	34.29
	ATOM	4051	OW0	WAT	W	180	0	30.277	18.006	25.789	1.00	42.28
	ATOM	4052	OW0	WAT	W	181	0	2.316	18.424	27.884	1.00	47.39
	ATOM	4053	OW0	WAT	W	182	0	19.401	41.164	39.560	1.00	39.68
35	ATOM	4054	OW0	WAT	W	183	0	23.742	10.982	24.879	1.00	43.32
	ATOM	4055	OW0	WAT	W	184	0	3.926	24.450	44.251	1.00	48.95
	ATOM	4056	OW0	WAT	W	185	0	25.186	21.211	40.951	1.00	39.05
	ATOM	4057	OW0	WAT	W	186	0	20.353	34.816	48.799	1.00	34.08

	ATOM	4058	OW0	WAT	W	187	0	35.782	22.476	21.693	1.00	40.04
	ATOM	4059	OW0	WAT	W	188	0	27.256	23.617	12.235	1.00	40.85
	ATOM	4060	OW0	WAT	W	189	0	6.777	12.502	12.641	1.00	53.37
	ATOM	4061	OW0	WAT	W	190	0	-4.663	38.998	4.159	1.00	39.85
5	ATOM	4062	OW0	WAT	W	191	0	24.398	52.064	24.607	1.00	45.51
	ATOM	4063	OW0	WAT	W	192	0	1.808	15.541	4.832	1.00	41.06
	ATOM	4064	OW0	WAT	W	193	0	5.341	36.359	7.569	1.00	39.36
	ATOM	4065	OW0	WAT	W	194	0	32.192	38.650	21.799	1.00	37.18
	ATOM	4066	OW0	WAT	W	195	0	-10.782	36.616	38.705	1.00	50.35
10	ATOM	4067	OW0	WAT	W	196	0	4.119	64.116	32.946	1.00	34.51
	ATOM	4068	OW0	WAT	W	197	0	19.427	22.772	5.898	1.00	37.94
	ATOM	4069	OW0	WAT	W	198	0	-4.671	33.476	1.652	1.00	43.38
	ATOM	4070	OW0	WAT	W	199	0	-8.983	23.757	17.693	1.00	57.10
	ATOM	4071	OW0	WAT	W	200	0	-6.735	22.473	20.432	1.00	38.49
15	ATOM	4072	OW0	WAT	W	201	0	-6.954	26.746	37.309	1.00	55.48
	ATOM	4073	OW0	WAT	W	202	0	23.418	38.662	33.700	1.00	42.20
	ATOM	4074	OW0	WAT	W	203	0	9.004	24.070	36.971	1.00	40.06
	ATOM	4075	OW0	WAT	W	204	0	18.890	42.920	51.502	1.00	46.29
	ATOM	4076	OW0	WAT	W	205	0	13.301	18.514	3.624	1.00	42.17
20	ATOM	4077	OW0	WAT	W	206	0	31.189	12.995	19.645	1.00	51.92
	ATOM	4078	OW0	WAT	W	207	0	15.589	57.456	13.738	1.00	38.96
	ATOM	4079	OW0	WAT	W	208	0	-3.389	12.961	12.738	1.00	46.99
	ATOM	4080	OW0	WAT	W	209	0	9.321	30.475	6.320	1.00	49.75
	ATOM	4081	OW0	WAT	W	210	0	1.680	61.379	33.738	1.00	37.48
25	ATOM	4082	OW0	WAT	W	211	0	-3.811	36.417	3.807	1.00	46.01
	ATOM	4083	OW0	WAT	W	212	0	17.087	46.902	3.830	1.00	45.12
	ATOM	4084	OW0	WAT	W	213	0	23.702	22.325	43.022	1.00	36.14
	ATOM	4085	OW0	WAT	W	214	0	10.849	60.003	14.389	1.00	32.05
	ATOM	4086	OW0	WAT	W	215	0	34.001	25.493	20.855	1.00	40.75
30	ATOM	4087	OW0	WAT	W	216	0	27.422	37.093	28.951	1.00	42.33
	ATOM	4088	OW0	WAT	W	217	0	2.471	63.256	35.173	1.00	48.36
	ATOM	4089	OW0	WAT	W	218	0	-0.973	59.086	28.720	1.00	53.14
	ATOM	4090	OW0	WAT	W	219	0	28.841	9.287	6.463	1.00	39.02
	ATOM	4091	OW0	WAT	W	220	0	-5.593	21.802	9.619	1.00	44.21
35	ATOM	4092	OW0	WAT	W	221	0	22.109	15.521	1.696	1.00	38.33
	ATOM	4093	OW0	WAT	W	222	0	13.029	32.860	12.233	1.00	37.63
	ATOM	4094	OW0	WAT	W	223	0	11.840	33.823	3.800	1.00	42.20
	ATOM	4095	OW0	WAT	W	224	0	8.476	42.976	-0.104	1.00	40.23

	ATOM	4096	OW0	WAT	W	225	0	6.607	9.754	13.906	1.00	41.30
	ATOM	4097	OW0	WAT	W	226	0	22.513	32.613	49.067	1.00	47.26
	ATOM	4098	OW0	WAT	W	227	0	13.790	4.924	16.718	1.00	38.05
	ATOM	4099	OW0	WAT	W	228	0	4.578	46.381	2.146	1.00	38.90
5	ATOM	4100	OW0	WAT	W	229	0	-0.178	18.054	23.533	1.00	43.42
	ATOM	4101	OW0	WAT	W	230	0	-5.146	34.010	4.766	1.00	38.90
	ATOM	4102	OW0	WAT	W	231	0	20.232	28.890	51.507	1.00	44.95
	ATOM	4103	OW0	WAT	W	232	0	16.083	32.879	10.309	1.00	45.29
	ATOM	4104	OW0	WAT	W	233	0	22.111	51.333	10.599	1.00	34.03
10	ATOM	4105	OW0	WAT	W	234	0	3.247	15.790	28.046	1.00	50.25
	ATOM	4106	OW0	WAT	W	235	0	5.547	11.598	9.674	1.00	56.39
	ATOM	4107	OW0	WAT	W	236	0	-1.085	18.297	-2.265	1.00	45.26
	ATOM	4108	OW0	WAT	W	237	0	30.994	12.013	22.690	1.00	50.37
	ATOM	4109	OW0	WAT	W	238	0	24.691	33.260	27.819	1.00	37.65
15	ATOM	4110	OW0	WAT	W	239	0	18.911	40.770	5.815	1.00	44.15
	ATOM	4111	OW0	WAT	W	240	0	21.532	53.033	33.280	1.00	31.23
	ATOM	4112	OW0	WAT	W	241	0	19.745	46.029	4.364	1.00	46.38
	ATOM	4113	OW0	WAT	W	242	0	27.516	16.526	25.474	1.00	51.75
	ATOM	4114	OW0	WAT	W	243	0	34.171	19.604	8.423	1.00	55.79
20	ATOM	4115	OW0	WAT	W	244	0	23.870	53.512	11.474	1.00	42.01
	ATOM	4116	OW0	WAT	W	245	0	14.492	23.842	44.882	1.00	52.25
	ATOM	4117	OW0	WAT	W	246	0	-3.070	63.260	33.189	1.00	40.77
	ATOM	4118	OW0	WAT	W	247	0	22.185	55.701	37.353	1.00	39.52
	ATOM	4119	OW0	WAT	W	248	0	14.144	26.239	42.825	1.00	42.50
25	ATOM	4120	OW0	WAT	W	249	0	25.026	36.545	35.213	1.00	58.19
	ATOM	4121	OW0	WAT	W	250	0	27.072	34.293	43.895	1.00	46.58
	ATOM	4122	OW0	WAT	W	251	0	11.742	7.192	4.856	1.00	42.78
	ATOM	4123	OW0	WAT	W	252	0	0.730	46.405	24.947	1.00	39.31
	ATOM	4124	OW0	WAT	W	253	0	28.346	34.036	30.808	1.00	43.10
30	ATOM	4125	OW0	WAT	W	254	0	-3.838	40.281	1.903	1.00	38.67
	ATOM	4126	OW0	WAT	W	255	0	6.837	35.163	51.935	1.00	58.57
	ATOM	4127	OW0	WAT	W	256	0	19.740	62.853	17.880	1.00	52.39
	ATOM	4128	OW0	WAT	W	258	0	-0.994	41.755	22.088	0.00	69.57
	ATOM	4129	OW0	WAT	W	259	0	1.221	10.473	15.458	1.00	54.80
35	ATOM	4130	OW0	WAT	W	260	0	23.445	55.367	31.430	1.00	48.90
	ATOM	4131	OW0	WAT	W	261	0	23.757	57.854	34.657	1.00	37.69
	ATOM	4132	OW0	WAT	W	262	0	8.508	19.111	34.572	1.00	55.52
	ATOM	4133	OW0	WAT	W	263	0	22.806	22.381	3.611	1.00	64.20

	ATOM	4134	OW0	WAT	W	264	0	0.398	22.602	42.625	1.00	58.86
	ATOM	4135	OW0	WAT	W	265	0	4.195	52.287	43.465	1.00	36.84
	ATOM	4136	OW0	WAT	W	266	0	20.211	6.536	4.911	1.00	39.34
	ATOM	4137	OW0	WAT	W	267	0	14.680	16.117	2.803	1.00	45.76
5	ATOM	4138	OW0	WAT	W	268	0	14.938	25.582	6.850	1.00	41.01
	ATOM	4139	OW0	WAT	W	269	0	7.763	7.940	31.891	0.00	71.30
	ATOM	4140	OW0	WAT	W	270	0	-3.459	33.491	39.400	1.00	40.80
	ATOM	4141	OW0	WAT	W	271	0	23.154	22.897	6.985	1.00	48.25
	ATOM	4142	OW0	WAT	W	272	0	34.916	25.555	28.092	1.00	52.63
10	ATOM	4143	OW0	WAT	W	273	0	8.332	45.481	50.776	1.00	47.23
	ATOM	4144	OW0	WAT	W	274	0	-3.441	57.643	28.775	1.00	49.70
	ATOM	4145	OW0	WAT	W	275	0	23.213	40.573	47.561	1.00	56.02
	ATOM	4146	OW0	WAT	W	276	0	5.421	55.179	45.172	1.00	52.70
	ATOM	4147	OW0	WAT	W	277	0	-3.012	21.908	40.933	1.00	41.69
15	ATOM	4148	OW0	WAT	W	278	0	26.328	53.637	17.905	1.00	37.80
	ATOM	4149	OW0	WAT	W	279	0	9.740	58.922	43.485	1.00	52.06
	ATOM	4150	OW0	WAT	W	280	0	23.545	15.660	4.258	1.00	41.55
	ATOM	4151	OW0	WAT	W	281	0	22.652	31.154	51.246	1.00	58.65
	ATOM	4152	OW0	WAT	W	282	0	22.192	51.135	8.251	1.00	44.76
20	ATOM	4153	OW0	WAT	W	283	0	-6.046	22.886	24.288	1.00	52.40
	ATOM	4154	OW0	WAT	W	284	0	19.949	45.276	49.516	1.00	54.58
	ATOM	4155	OW0	WAT	W	285	0	7.388	22.308	32.108	1.00	43.62
	ATOM	4156	OW0	WAT	W	286	0	15.080	50.452	2.795	1.00	52.20
	ATOM	4157	OW0	WAT	W	287	0	1.016	62.235	30.878	1.00	56.81
25	ATOM	4158	OW0	WAT	W	288	0	23.803	52.570	27.699	1.00	56.22
	ATOM	4159	OW0	WAT	W	289	0	-10.525	31.623	13.870	1.00	47.21
	ATOM	4160	OW0	WAT	W	290	0	1.599	55.502	24.567	1.00	44.50
	ATOM	4161	OW0	WAT	W	291	0	-15.671	37.251	14.660	1.00	83.62
	ATOM	4162	OW0	WAT	W	292	0	7.231	7.950	17.754	1.00	50.61
30	ATOM	4163	OW0	WAT	W	293	0	-4.009	34.057	42.492	1.00	78.48
	ATOM	4164	OW0	WAT	W	294	0	21.004	58.371	18.690	1.00	61.15
	ATOM	4165	OW0	WAT	W	295	0	16.405	48.869	52.211	1.00	53.17
	ATOM	4166	OW0	WAT	W	296	0	7.329	31.202	1.964	1.00	38.86
	ATOM	4167	OW0	WAT	W	297	0	9.518	53.886	5.467	1.00	41.62
35	ATOM	4168	OW0	WAT	W	298	0	10.398	48.995	0.335	1.00	49.64
	ATOM	4169	OW0	WAT	W	299	0	9.889	15.077	3.774	1.00	42.28
	ATOM	4170	OW0	WAT	W	300	0	15.854	56.731	10.934	1.00	44.02

SEQUENCE LISTING

(1) GENERAL INFORMATION:

5

(i) APPLICANT:

(A) NAME: NOVO NORDISK
(B) STREET: Novo Alle
(C) CITY: Bagsvaerd
10 (E) COUNTRY: Denmark
(F) POSTAL CODE (ZIP): DK-2800
(G) TELEPHONE: +45 44 44 88 88
(H) TELEFAX: +45 44 49 05 55

15 (ii) TITLE OF INVENTION: LACCASE MUTANTS

(iii) NUMBER OF SEQUENCES: 10

20

(iv) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

25

(2) INFORMATION FOR SEQ ID NO: 1:

30

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 539 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

35

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

40 Met Phe Lys Asn Leu Leu Ser Phe Ala Leu Leu Ala Ile Ser Val Ala
1 5 10 15
Asn Ala Gln Ile Val Asn Ser Val Asp Thr Met Thr Leu Thr Asn Ala
20 25 30
45 Asn Val Ser Pro Asp Gly Phe Thr Arg Ala Gly Ile Leu Val Asn Gly
35 40 45
Val His Gly Pro Leu Ile Arg Gly Gly Lys Asn Asp Asn Phe Glu Leu
50 55 60
Asn Val Val Asn Asp Leu Asp Asn Pro Thr Met Leu Arg Pro Thr Ser
65 70 75 80
55 Ile His Trp His Gly Leu Phe Gln Arg Gly Thr Asn Trp Ala Asp Gly
85 90 95
Ala Asp Gly Val Asn Gln Cys Pro Ile Ser Pro Gly His Ala Phe Leu
100 105 110
60 Tyr Lys Phe Thr Pro Ala Gly His Ala Gly Thr Phe Trp Tyr His Ser
115 120 125
His Phe Gly Thr Gln Tyr Cys Asp Gly Leu Arg Gly Pro Met Val Ile
130 135 140
65 Tyr Asp Asp Asn Asp Pro His Ala Ala Leu Tyr Asp Glu Asp Asp Glu
145 150 155 160
Asn Thr Ile Ile Thr Leu Ala Asp Trp Tyr His Ile Pro Ala Pro Ser

	165	170	175
	Ile Gln Gly Ala Ala Gln Pro Asp Ala Thr Leu Ile Asn Gly Lys Gly		
	180	185	190
5	Arg Tyr Val Gly Gly Pro Ala Ala Glu Leu Ser Ile Val Asn Val Glu		
	195	200	205
10	Gln Gly Lys Lys Tyr Arg Met Arg Leu Ile Ser Leu Ser Cys Asp Pro		
	210	215	220
	Asn Trp Gln Phe Ser Ile Asp Gly His Glu Leu Thr Ile Ile Glu Val		
	225	230	235
15	Asp Gly Gln Leu Thr Glu Pro His Thr Val Asp Arg Leu Gln Ile Phe		
	245	250	255
	Thr Gly Gln Arg Tyr Ser Phe Val Leu Asp Ala Asn Gln Pro Val Asp		
	260	265	270
20	Asn Tyr Trp Ile Arg Ala Gln Pro Asn Lys Gly Arg Asn Gly Leu Ala		
	275	280	285
25	Gly Thr Phe Ala Asn Gly Val Asn Ser Ala Ile Leu Arg Tyr Ala Gly		
	290	295	300
	Ala Ala Asn Ala Asp Pro Thr Thr Ser Ala Asn Pro Asn Pro Ala Gln		
	305	310	315
30	Leu Asn Glu Ala Asp Leu His Ala Leu Ile Asp Pro Ala Ala Pro Gly		
	325	330	335
	Ile Pro Thr Pro Gly Ala Ala Asp Val Asn Leu Arg Phe Gln Leu Gly		
	340	345	350
35	Phe Ser Gly Gly Arg Phe Thr Ile Asn Gly Thr Ala Tyr Glu Ser Pro		
	355	360	365
40	Ser Val Pro Thr Leu Leu Gln Ile Met Ser Gly Ala Gln Ser Ala Asn		
	370	375	380
	Asp Leu Leu Pro Ala Gly Ser Val Tyr Glu Leu Pro Arg Asn Gln Val		
	385	390	395
45	Val Glu Leu Val Val Pro Ala Gly Val Leu Gly Gly Pro His Pro Phe		
	405	410	415
	His Leu His Gly His Ala Phe Ser Val Val Arg Ser Ala Gly Ser Ser		
	420	425	430
50	Thr Tyr Asn Phe Val Asn Pro Val Lys Arg Asp Val Val Ser Leu Gly		
	435	440	445
55	Val Thr Gly Asp Glu Val Thr Ile Arg Phe Val Thr Asp Asn Pro Gly		
	450	455	460
	Pro Trp Phe Phe His Cys His Ile Glu Phe His Leu Met Asn Gly Leu		
	465	470	475
60	Ala Ile Val Phe Ala Glu Asp Met Ala Asn Thr Val Asp Ala Asn Asn		
	485	490	495
	Pro Pro Val Glu Trp Ala Gln Leu Cys Glu Ile Tyr Asp Asp Leu Pro		
	500	505	510
65	Pro Glu Ala Thr Ser Ile Gln Thr Val Val Arg Arg Ala Glu Pro Thr		
	515	520	525

Gly Phe Ser Ala Lys Phe Arg Arg Glu Gly Leu
530 535

5 (2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 499 amino acids
(B) TYPE: amino acid
10 (C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

15

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

Gly Ile Gly Pro Val Ala Asp Leu Thr Ile Thr Asn Ala Ala Val Ser
1 5 10 15
20 Pro Asp Gly Phe Ser Arg Gln Ala Val Val Val Asn Gly Gly Thr Pro
20 25 30
25 Gly Pro Leu Ile Thr Gly Asn Met Gly Asp Arg Phe Gln Leu Asn Val
35 40 45
Ile Asp Asn Leu Thr Asn His Thr Met Leu Lys Ser Thr Ser Ile His
50 55 60
30 Trp His Gly Phe Phe Gln Lys Gly Thr Asn Trp Ala Asp Gly Pro Ala
65 70 75 80
Phe Ile Asn Gln Cys Pro Ile Ser Ser Gly His Ser Phe Leu Tyr Asp
85 90 95
35 Phe Gln Val Pro Asp Gln Ala Gly Thr Phe Trp Tyr His Ser His Leu
100 105 110
40 Ser Thr Gln Tyr Cys Asp Gly Leu Arg Gly Pro Phe Val Val Tyr Asp
115 120 125
Pro Asn Asp Pro Ala Ala Asp Leu Tyr Asp Val Asp Asn Asp Asp Thr
130 135 140
45 Val Ile Thr Leu Val Asp Trp Tyr His Val Ala Ala Lys Leu Gly Pro
145 150 155 160
Ala Phe Pro Leu Gly Ala Asp Ala Thr Leu Ile Asn Gly Lys Gly Arg
165 170 175
50 Ser Pro Ser Thr Thr Thr Ala Asp Leu Ser Val Ile Ser Val Thr Pro
180 185 190
Gly Lys Arg Tyr Arg Phe Arg Leu Val Ser Leu Ser Cys Asp Pro Asn
195 200 205
Tyr Thr Phe Ser Ile Asp Gly His Asn Met Thr Ile Ile Glu Thr Asp
210 215 220
60 Ser Ile Asn Thr Ala Pro Leu Val Val Asp Ser Ile Gln Ile Phe Ala
225 230 235 240
Ala Gln Arg Tyr Ser Phe Val Leu Glu Ala Asn Gln Ala Val Asp Asn
245 250 255
65 Tyr Trp Ile Arg Ala Asn Pro Asn Phe Gly Asn Val Gly Phe Thr Gly
260 265 270

Gly Ile Asn Ser Ala Ile Leu Arg Tyr Asp Gly Ala Ala Ala Val Glu
 275 280 285
 5 Pro Thr Thr Thr Gln Thr Thr Ser Thr Ala Pro Leu Asn Glu Val Asn
 290 295 300
 Leu His Pro Leu Val Thr Thr Ala Val Pro Gly Ser Pro Val Ala Gly
 305 310 315 320
 10 Gly Val Asp Leu Ala Ile Asn Met Ala Phe Asn Phe Asn Gly Thr Asn
 325 330 335
 Phe Phe Ile Asn Gly Ala Ser Phe Thr Pro Pro Thr Val Pro Val Leu
 340 345 350
 15 Leu Gln Ile Ile Ser Gly Ala Gln Asn Ala Gln Asp Leu Leu Pro Ser
 355 360 365
 Gly Ser Val Tyr Ser Leu Pro Ser Asn Ala Asp Ile Glu Ile Ser Phe
 20 370 375 380
 Pro Ala Thr Ala Ala Ala Pro Gly Ala Pro His Pro Phe His Leu His
 385 390 395 400
 25 Gly His Ala Phe Ala Val Val Arg Ser Ala Gly Ser Thr Val Tyr Asn
 405 410 415
 Tyr Asp Asn Pro Ile Phe Arg Asp Val Val Ser Thr Gly Thr Pro Ala
 420 425 430
 30 Ala Gly Asp Asn Val Thr Ile Arg Phe Arg Thr Asp Asn Pro Gly Pro
 435 440 445
 Trp Phe Leu His Cys His Ile Asp Phe His Leu Glu Ala Gly Phe Ala
 35 450 455 460
 Val Val Phe Ala Glu Asp Ile Pro Asp Val Ala Ser Ala Asn Pro Val
 465 470 475 480
 40 Pro Gln Ala Trp Ser Asp Leu Cys Pro Thr Tyr Asp Ala Leu Asp Pro
 485 490 495
 Ser Asp Gln

45

(2) INFORMATION FOR SEQ ID NO: 3:

- (i) SEQUENCE CHARACTERISTICS:
 50 (A) LENGTH: 499 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein
 55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

60 Ala Ile Gly Pro Val Ala Ser Leu Val Val Ala Asn Ala Pro Val Ser
 1 5 10 15
 Pro Asp Gly Phe Leu Arg Asp Ala Ile Val Val Asn Gly Val Val Pro
 20 25 30
 65 Ser Pro Leu Ile Thr Gly Lys Lys Gly Asp Arg Phe Gln Leu Asn Val
 35 40 45
 Val Asp Thr Leu Thr Asn His Ser Met Leu Lys Ser Thr Ser Ile His

	50	55	60	
	Trp His Gly Phe Phe Gln Ala Gly Thr Asn Trp Ala Glu Gly Pro Ala			
	65	70	75	80
5	Phe Val Asn Gln Cys Pro Ile Ala Ser Gly His Ser Phe Leu Tyr Asp			
		85	90	95
	Phe His Val Pro Asp Gln Ala Gly Thr Phe Trp Tyr His Ser His Leu			
10		100	105	110
	Ser Thr Gln Tyr Cys Asp Gly Leu Arg Gly Pro Phe Val Val Tyr Asp			
		115	120	125
15	Pro Lys Asp Pro His Ala Ser Arg Tyr Asp Val Asp Asn Glu Ser Thr			
		130	135	140
	Val Ile Thr Leu Thr Asp Trp Tyr His Thr Ala Ala Arg Leu Gly Pro			
20		145	150	155
	Lys Phe Pro Leu Gly Ala Asp Ala Thr Leu Ile Asn Gly Leu Gly Arg			
		165	170	175
	Ser Ala Ser Thr Pro Thr Ala Ala Leu Ala Val Ile Asn Val Gln His			
25		180	185	190
	Gly Lys Arg Tyr Arg Phe Arg Leu Val Ser Ile Ser Cys Asp Pro Asn			
		195	200	205
30	Tyr Thr Phe Ser Ile Asp Gly His Asn Leu Thr Val Ile Glu Val Asp			
		210	215	220
	Gly Ile Asn Ser Gln Pro Leu Leu Val Asp Ser Ile Gln Ile Phe Ala			
35		225	230	235
	Ala Gln Arg Tyr Ser Phe Val Leu Asn Ala Asn Gln Thr Val Gly Asn			
		245	250	255
	Tyr Trp Val Arg Ala Asn Pro Asn Phe Gly Thr Val Gly Phe Ala Gly			
40		260	265	270
	Gly Ile Asn Ser Ala Ile Leu Arg Tyr Gln Gly Ala Pro Val Ala Glu			
		275	280	285
45	Pro Thr Thr Thr Gln Thr Pro Ser Val Ile Pro Leu Ile Glu Thr Asn			
		290	295	300
	Leu His Pro Leu Ala Arg Met Pro Val Pro Gly Ser Pro Thr Pro Gly			
50		305	310	315
	Gly Val Asp Lys Ala Leu Asn Leu Ala Phe Asn Phe Asn Gly Thr Asn			
		325	330	335
	Phe Phe Ile Asn Asn Ala Thr Phe Thr Pro Pro Thr Val Pro Val Leu			
55		340	345	350
	Leu Gln Ile Leu Ser Gly Ala Gln Thr Ala Gln Asp Leu Leu Pro Ala			
		355	360	365
60	Gly Ser Val Tyr Pro Leu Pro Ala His Ser Thr Ile Glu Ile Thr Leu			
		370	375	380
	Pro Ala Thr Ala Leu Ala Pro Gly Ala Pro His Pro Phe His Leu His			
65		385	390	395
	Gly His Ala Phe Ala Val Val Arg Ser Ala Gly Ser Thr Thr Tyr Asn			
		405	410	415

Tyr Asn Asp Pro Ile Phe Arg Asp Val Val Ser Thr Gly Thr Pro Ala
 420 425 430
 5 Ala Gly Asp Asn Val Thr Ile Arg Phe Gln Thr Asp Asn Pro Gly Pro
 435 440 445
 Trp Phe Leu His Cys His Ile Asp Phe His Leu Asp Ala Gly Phe Ala
 450 455 460
 10 Ile Val Phe Ala Glu Asp Val Ala Asp Val Lys Ala Ala Asn Pro Val
 465 470 475 480
 Pro Lys Ala Trp Ser Asp Leu Cys Pro Ile Tyr Asp Gly Leu Ser Glu
 485 490 495
 15 Ala Asn Gln

20 (2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 548 amino acids
 (B) TYPE: amino acid
 25 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

Met His Thr Phe Leu Arg Ser Thr Ala Leu Val Val Ala Gly Leu Ser
 1 5 10 15
 35 Ala Arg Ala Leu Ala Ser Ile Gly Pro Val Thr Asp Phe His Ile Val
 20 25 30
 40 Asn Ala Ala Val Ser Pro Asp Gly Phe Ser Arg Gln Ala Val Leu Ala
 35 40 45
 Glu Gly Val Phe Pro Gly Pro Leu Ile Ala Gly Asn Lys Gly Asp Asn
 50 55 60
 45 Phe Gln Ile Asn Val Ile Asp Glu Leu Thr Asn Ala Thr Met Leu Lys
 65 70 75 80
 Thr Thr Thr Ile His Trp His Gly Phe Phe Gln His Gly Thr Asn Trp
 85 90 95
 50 Ala Asp Gly Pro Ala Phe Ile Asn Gln Cys Pro Ile Ala Ser Gly Asp
 100 105 110
 55 Ser Phe Leu Tyr Asn Phe Gln Val Pro Asp Gln Ala Gly Thr Phe Trp
 115 120 125
 Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp Gly Leu Arg Gly Pro
 130 135 140
 60 Phe Val Val Tyr Asp Pro Ala Asp Pro Tyr Leu Asp Gln Tyr Asp Val
 145 150 155 160
 Asp Asp Asp Ser Thr Val Ile Thr Leu Ala Asp Trp Tyr His Thr Ala
 165 170 175
 65 Ala Arg Leu Gly Ser Pro Phe Pro Ala Ala Asp Thr Thr Leu Ile Asn
 180 185 190

Gly Leu Gly Arg Cys Gly Glu Ala Gly Cys Pro Val Ser Asp Leu Ala
 195 200 205
 5 Val Ile Ser Val Thr Lys Gly Lys Arg Tyr Arg Phe Arg Leu Val Ser
 210 215 220
 Ile Ser Cys Asp Ser Phe Phe Thr Phe Ser Ile Asp Gly His Ser Leu
 225 230 235 240
 10 Asn Val Ile Glu Val Asp Ala Thr Asn His Gln Pro Leu Thr Val Asp
 245 250 255
 Glu Leu Thr Ile Tyr Ala Gly Gln Arg Tyr Ser Phe Ile Leu Thr Ala
 260 265 270
 15 Asp Gln Asp Val Asp Asn Tyr Trp Ile Arg Ala Asn Pro Gly Ile Gly
 275 280 285
 20 Ile Thr Thr Gly Phe Ala Gly Gly Ile Asn Ser Ala Ile Leu Arg Tyr
 290 295 300
 Asp Gly Ala Asp Val Val Glu Pro Thr Thr Thr Gln Ala Thr Ser Pro
 305 310 315 320
 25 Val Val Leu Ser Glu Ser Asn Leu Ala Pro Leu Thr Asn Ala Ala Ala
 325 330 335
 Pro Gly Leu Pro Glu Val Gly Gly Val Asp Leu Ala Leu Asn Phe Asn
 340 345 350
 30 Leu Thr Phe Asp Gly Pro Ser Leu Lys Phe Gln Ile Asn Gly Val Thr
 355 360 365
 Phe Val Pro Pro Thr Val Pro Val Leu Leu Gln Ile Leu Ser Gly Ala
 370 375 380
 35 Gln Ser Ala Ala Asp Leu Leu Pro Ser Gly Ser Val Tyr Ala Leu Pro
 385 390 395 400
 40 Ser Asn Ala Thr Ile Glu Leu Ser Leu Pro Ala Gly Ala Leu Gly Gly
 405 410 415
 Pro His Pro Phe His Leu His Gly His Thr Phe Ser Val Val Arg Pro
 420 425 430
 45 Ala Gly Ser Thr Thr Tyr Asn Tyr Val Asn Pro Val Gln Arg Asp Val
 435 440 445
 Val Ser Ile Gly Asn Thr Gly Asp Asn Val Thr Ile Arg Phe Asp Thr
 450 455 460
 50 Asn Asn Pro Gly Pro Trp Phe Leu His Cys His Ile Asp Trp His Leu
 465 470 475 480
 55 Glu Ala Ala Leu Pro Leu Ser Ser Leu Arg Thr Ser Leu Thr Leu Arg
 485 490 495
 Pro Leu Thr Leu Ser Pro Arg Thr Gly Pro Thr Cys Ala Leu Ser Thr
 500 505 510
 60 Thr Leu Trp Thr His Leu Ile Thr Ser Gly Phe Ala Ser Ile Ile Gln
 515 520 525
 65 Trp Met Met Gly Gly Asn Gly Leu Phe Ala Pro His Ala Leu Ser Phe
 530 535 540
 Leu Gly Ser Gln

545

(2) INFORMATION FOR SEQ ID NO: 5:

5 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 529 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

15 Met Leu Ser Ser Ile Thr Leu Leu Pro Leu Leu Ala Ala Val Ser Thr
 1 5 10 15

20 Pro Ala Phe Ala Ala Val Arg Asn Tyr Lys Phe Asp Ile Lys Asn Val
 20 25 30

Asn Val Ala Pro Asp Gly Phe Gln Arg Ser Ile Val Ser Val Asn Gly
 35 40 45

25 Leu Val Pro Gly Thr Leu Ile Thr Ala Asn Lys Gly Asp Thr Leu Arg
 50 55 60

Ile Asn Val Thr Asn Gln Leu Thr Asp Pro Ser Met Arg Arg Ala Thr
 65 70 75 80

30 Thr Ile His Trp His Gly Leu Phe Gln Ala Thr Thr Ala Asp Glu Asp
 85 90 95

35 Gly Pro Ala Phe Val Thr Gln Cys Pro Ile Ala Gln Asn Leu Ser Tyr
 100 105 110

Thr Tyr Glu Ile Pro Leu Arg Gly Gln Thr Gly Thr Met Trp Tyr His
 115 120 125

40 Ala His Leu Ala Ser Gln Tyr Val Asp Gly Leu Arg Gly Pro Leu Val
 130 135 140

Ile Tyr Asp Pro Asn Asp Pro His Lys Ser Arg Tyr Asp Val Asp Asp
 145 150 155 160

45 Ala Ser Thr Val Val Met Leu Glu Asp Trp Tyr His Thr Pro Ala Pro
 165 170 175

50 Val Leu Glu Lys Gln Met Phe Ser Thr Asn Asn Thr Ala Leu Leu Ser
 180 185 190

Pro Val Pro Asp Ser Gly Leu Ile Asn Gly Lys Gly Arg Tyr Val Gly
 195 200 205

55 Gly Pro Ala Val Pro Arg Ser Val Ile Asn Val Lys Arg Gly Lys Arg
 210 215 220

Tyr Arg Leu Arg Val Ile Asn Ala Ser Ala Ile Gly Ser Phe Thr Phe
 225 230 235 240

60 Ser Ile Glu Gly His Ser Leu Thr Val Ile Glu Ala Asp Gly Ile Leu
 245 250 255

His Gln Pro Leu Ala Val Asp Ser Phe Gln Ile Tyr Ala Gly Gln Arg
 260 265 270

65 Tyr Ser Val Ile Val Glu Ala Asn Gln Thr Ala Ala Asn Tyr Trp Ile
 275 280 285

Arg Ala Pro Met Thr Val Ala Gly Ala Gly Thr Asn Ala Asn Leu Asp
 290 295 300
 5 Pro Thr Asn Val Phe Ala Val Leu His Tyr Glu Gly Ala Pro Asn Ala
 305 310 315 320
 Glu Pro Thr Thr Glu Gln Gly Ser Ala Ile Gly Thr Ala Leu Val Glu
 325 330 335
 10 Glu Asn Leu His Ala Leu Ile Asn Pro Gly Ala Pro Gly Gly Ser Ala
 340 345 350
 Pro Ala Asp Val Ser Leu Asn Leu Ala Ile Gly Arg Ser Thr Val Asp
 355 360 365
 15 Gly Ile Leu Arg Phe Thr Phe Asn Asn Ile Lys Tyr Glu Ala Pro Ser
 370 375 380
 Leu Pro Thr Leu Leu Lys Ile Leu Ala Asn Asn Ala Ser Asn Asp Ala
 385 390 395 400
 Asp Phe Thr Pro Asn Glu His Thr Ile Val Leu Pro His Asn Lys Val
 405 410 415
 25 Ile Glu Leu Asn Ile Thr Gly Gly Ala Asp His Pro Ile His Leu His
 420 425 430
 Gly His Val Phe Asp Ile Val Lys Ser Leu Gly Gly Thr Pro Asn Tyr
 435 440 445
 30 Val Asn Pro Pro Arg Arg Asp Val Val Arg Val Gly Gly Thr Gly Val
 450 455 460
 Val Leu Arg Phe Lys Thr Asp Asn Pro Gly Pro Trp Phe Val His Cys
 465 470 475 480
 His Ile Asp Trp His Leu Glu Ala Gly Leu Ala Leu Val Phe Ala Glu
 485 490 495
 40 Ala Pro Ser Gln Ile Arg Gln Gly Val Gln Ser Val Gln Pro Asn Asn
 500 505 510
 Ala Trp Asn Gln Leu Cys Pro Lys Tyr Ala Ala Leu Pro Pro Asp Leu
 515 520 525
 45 Gln

50 (2) INFORMATION FOR SEQ ID NO: 6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 599 amino acids
 (B) TYPE: amino acid
 55 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

60 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

Met Ala Arg Ser Thr Thr Ser Leu Phe Ala Leu Ser Leu Val Ala Ser
 1 5 10 15
 65 Ala Phe Ala Arg Val Val Asp Tyr Gly Phe Asp Val Ala Asn Gly Ala
 20 25 30
 Val Ala Pro Asp Gly Val Thr Arg Asn Ala Val Leu Val Asn Gly Arg

	35	40	45
	Phe Pro Gly Pro Leu Ile Thr Ala Asn Lys Gly Asp Thr Leu Lys Ile		
	50	55	60
5	Thr Val Arg Asn Lys Leu Ser Asp Pro Thr Met Arg Arg Ser Thr Thr		
	65	70	75
	Ile His Trp His Gly Leu Leu Gln His Arg Thr Ala Glu Glu Asp Gly		
10		85	90
	Pro Ala Phe Val Thr Gln Cys Pro Ile Pro Pro Gln Glu Ser Tyr Thr		
		100	105
15	Tyr Thr Met Pro Leu Gly Glu Gln Thr Gly Thr Tyr Trp Tyr His Ser		
		115	120
	His Leu Ser Ser Gln Tyr Val Asp Gly Leu Arg Gly Pro Ile Val Ile		
		130	135
20	Tyr Asp Pro His Asp Pro Tyr Arg Asn Tyr Tyr Asp Val Asp Asp Glu		
		145	150
	Arg Thr Val Phe Thr Leu Ala Asp Trp Tyr His Thr Pro Ser Glu Ala		
25		165	170
	Ile Ile Ala Thr His Asp Val Leu Lys Thr Ile Pro Asp Ser Gly Thr		
		180	185
30	Ile Asn Gly Lys Gly Lys Tyr Asp Pro Ala Ser Ala Asn Thr Asn Asn		
		195	200
	Thr Thr Leu Glu Asn Leu Tyr Thr Leu Lys Val Lys Arg Gly Lys Arg		
		210	215
35	Tyr Arg Leu Arg Ile Ile Asn Ala Ser Ala Ile Ala Ser Phe Arg Phe		
		225	230
	Gly Val Gln Gly His Lys Cys Thr Ile Ile Glu Ala Asp Gly Val Leu		
40		245	250
	Thr Lys Pro Ile Glu Val Asp Ala Phe Asp Ile Leu Ala Gly Gln Arg		
		260	265
45	Tyr Ser Cys Ile Leu Lys Ala Asp Gln Asp Pro Asp Ser Tyr Trp Ile		
		275	280
	Asn Ala Pro Ile Thr Asn Val Leu Asn Thr Asn Val Gln Ala Leu Leu		
		290	295
50	Val Tyr Glu Asp Asp Lys Arg Pro Thr His Tyr Pro Trp Lys Pro Phe		
		305	310
	Leu Thr Trp Lys Ile Ser Asn Glu Ile Ile Gln Tyr Trp Gln His Lys		
55		325	330
	His Gly Ser His Gly His Lys Gly Lys Gly His His His Lys Val Arg		
		340	345
60	Ala Ile Gly Gly Val Ser Gly Leu Ser Ser Arg Val Lys Ser Arg Ala		
		355	360
	Ser Asp Leu Ser Lys Lys Ala Val Glu Leu Ala Ala Ala Leu Val Ala		
		370	375
65	Gly Glu Ala Glu Leu Asp Lys Arg Gln Asn Glu Asp Asn Ser Thr Ile		
		385	390
	Val Leu Asp Glu Thr Lys Leu Ile Pro Leu Val Gln Pro Gly Ala Pro		

150

	405	410	415
	Gly Gly Ser Arg Pro Ala Asp Val Val Val Pro Leu Asp Phe Gly Leu		
	420	425	430
5	Asn Phe Ala Asn Gly Leu Trp Thr Ile Asn Asn Val Ser Tyr Ser Pro		
	435	440	445
10	Pro Asp Val Pro Thr Leu Leu Lys Ile Leu Thr Asp Lys Asp Lys Val		
	450	455	460
	Asp Ala Ser Asp Phe Thr Ala Asp Glu His Thr Tyr Ile Leu Pro Lys		
	465	470	475
15	Asn Gln Val Val Glu Leu His Ile Lys Gly Gln Ala Leu Gly Ile Val		
	485	490	495
	His Pro Leu His Leu His Gly His Ala Phe Asp Val Val Gln Phe Gly		
	500	505	510
20	Asp Asn Ala Pro Asn Tyr Val Asn Pro Pro Arg Arg Asp Val Val Gly		
	515	520	525
	Val Thr Asp Ala Gly Val Arg Ile Gln Phe Arg Thr Asp Asn Pro Gly		
25	530	535	540
	Pro Trp Phe Leu His Cys His Ile Asp Trp His Leu Glu Glu Gly Phe		
	545	550	555
30	Ala Met Val Phe Ala Glu Ala Pro Glu Asp Ile Lys Lys Gly Ser Gln		
	565	570	575
	Ser Val Lys Pro Asp Gly Gln Trp Lys Lys Leu Cys Glu Lys Tyr Glu		
	580	585	590
35	Lys Leu Pro Glu Ala Leu Gln		
	595		

(2) INFORMATION FOR SEQ ID NO: 7:

40

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 572 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

45

(ii) MOLECULE TYPE: protein

50

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

	Met Ala Arg Thr Thr Phe Leu Val Ser Val Ser Leu Phe Val Ser Ala	
	1	15
55	Val Leu Ala Arg Thr Val Glu Tyr Asn Leu Lys Ile Ser Asn Gly Lys	
	20	30
	Ile Ala Pro Asp Gly Val Glu Arg Asp Ala Thr Leu Val Asn Gly Gly	
	35	45
60	Tyr Pro Gly Pro Leu Ile Phe Ala Asn Lys Gly Asp Thr Leu Lys Val	
	50	60
	Lys Val Gln Asn Lys Leu Thr Asn Pro Asp Met Tyr Arg Thr Thr Ser	
65	65	80
	Ile His Trp His Gly Leu Leu Gln His Arg Asn Ala Asp Asp Asp Gly	
	85	95

Pro Ala Phe Val Thr Gln Cys Pro Ile Val Pro Gln Ala Ser Tyr Thr
 100 105 110
 5 Tyr Thr Met Pro Leu Gly Asp Gln Thr Gly Thr Tyr Trp Tyr His Ser
 115 120 125
 His Leu Ser Ser Gln Tyr Val Asp Gly Leu Arg Gly Pro Leu Val Ile
 130 135 140
 10 Tyr Asp Pro Lys Asp Pro His Arg Arg Leu Tyr Asp Ile Asp Asp Glu
 145 150 155 160
 15 Lys Thr Val Leu Ile Ile Gly Asp Trp Tyr His Thr Ser Ser Lys Ala
 165 170 175
 Ile Leu Ala Thr Gly Asn Ile Thr Leu Gln Gln Pro Asp Ser Ala Thr
 180 185 190
 20 Ile Asn Gly Lys Gly Arg Phe Asp Pro Asp Asn Thr Pro Ala Asn Pro
 195 200 205
 Asn Thr Leu Tyr Thr Leu Lys Val Lys Arg Gly Lys Arg Tyr Arg Leu
 210 215 220
 25 Arg Val Ile Asn Ser Ser Ala Ile Ala Ser Phe Arg Met Ser Ile Gln
 225 230 235 240
 30 Gly His Lys Met Thr Val Ile Ala Ala Asp Gly Val Ser Thr Lys Pro
 245 250 255
 Tyr Gln Val Asp Ser Phe Asp Ile Leu Ala Gly Gln Arg Ile Asp Ala
 260 265 270
 35 Val Val Glu Ala Asn Gln Glu Pro Asp Thr Tyr Trp Ile Asn Ala Pro
 275 280 285
 Leu Thr Asn Val Ala Asn Lys Thr Ala Gln Ala Leu Leu Ile Tyr Glu
 290 295 300
 40 Asp Asp Arg Arg Pro Tyr His Pro Pro Lys Gly Pro Tyr Arg Lys Trp
 305 310 315 320
 45 Ser Val Ser Glu Ala Ile Ile Lys Tyr Trp Lys His Lys His Gly Arg
 325 330 335
 Gly Leu Leu Ser Gly His Gly Gly Leu Lys Ala Arg Met Met Glu Gly
 340 345 350
 50 Ser Leu His Leu His Gly Arg Arg Asp Ile Val Lys Arg Gln Asn Glu
 355 360 365
 Thr Thr Thr Val Val Met Asp Glu Thr Lys Leu Val Pro Leu Glu His
 370 375 380
 55 Pro Gly Ala Ala Cys Gly Ser Lys Pro Ala Asp Leu Val Ile Asp Leu
 385 390 395 400
 60 Thr Phe Gly Val Asn Phe Thr Thr Gly His Trp Met Ile Asn Gly Ile
 405 410 415
 Pro His Lys Ser Pro Asp Met Pro Thr Leu Leu Lys Ile Leu Thr Asp
 420 425 430
 65 Thr Asp Gly Val Thr Glu Ser Asp Phe Thr Gln Pro Glu His Thr Ile
 435 440 445

Ile Leu Pro Lys Asn Lys Cys Val Glu Phe Asn Ile Lys Gly Asn Ser
 450 455 460
 5 Gly Leu Gly Ile Val His Pro Ile His Leu His Gly His Thr Phe Asp
 465 470 475 480
 Val Val Gln Phe Gly Asn Asn Pro Pro Asn Tyr Val Asn Pro Pro Arg
 485 490 495
 10 Arg Asp Val Val Gly Ala Thr Asp Glu Gly Val Arg Phe Gln Phe Lys
 500 505 510
 Thr Asp Asn Pro Gly Pro Trp Phe Leu His Cys His Ile Asp Trp His
 515 520 525
 15 Leu Glu Glu Gly Phe Ala Met Val Phe Ala Glu Ala Pro Glu Ala Ile
 530 535 540
 Lys Gly Gly Pro Lys Ser Val Pro Val Asp Arg Gln Trp Lys Asp Leu
 545 550 555 560
 Cys Arg Lys Tyr Gly Ser Leu Pro Ala Gly Phe Leu
 565 570

25 (2) INFORMATION FOR SEQ ID NO: 8:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 575 amino acids
 (B) TYPE: amino acid
 30 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

35

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

Met Ala Arg Thr Thr Phe Leu Val Ser Val Ser Leu Phe Val Ser Ala
 1 5 10 15
 40 Val Leu Ala Arg Thr Val Glu Tyr Gly Leu Lys Ile Ser Asp Gly Glu
 20 25 30
 45 Ile Ala Pro Asp Gly Val Lys Arg Asn Ala Thr Leu Val Asn Gly Gly
 35 40 45
 Tyr Pro Gly Pro Leu Ile Phe Ala Asn Lys Gly Asp Thr Leu Lys Val
 50 55 60
 50 Lys Val Gln Asn Lys Leu Thr Asn Pro Glu Met Tyr Arg Thr Thr Ser
 65 70 75 80
 Ile His Trp His Gly Leu Leu Gln His Arg Asn Ala Asp Asp Asp Gly
 85 90 95
 55 Pro Ser Phe Val Thr Gln Cys Pro Ile Val Pro Arg Glu Ser Tyr Thr
 100 105 110
 60 Tyr Thr Ile Pro Leu Asp Asp Gln Thr Gly Thr Tyr Trp Tyr His Ser
 115 120 125
 His Leu Ser Ser Gln Tyr Val Asp Gly Leu Arg Gly Pro Leu Val Ile
 130 135 140
 65 Tyr Pro Lys Asp Pro His Arg Arg Leu Tyr Asp Val Asp Asp Glu Lys
 145 150 155 160
 Thr Val Leu Ile Ile Gly Asp Trp Tyr His Glu Ser Ser Lys Ala Ile

	165	170	175
	Leu Ala Ser Gly Asn Ile Thr Arg Gln Arg Pro Val Ser Ala Thr Ile		
	180	185	190
5	Asn Gly Lys Gly Arg Phe Asp Pro Asp Asn Thr Pro Ala Asn Pro Asp		
	195	200	205
10	Thr Leu Tyr Thr Leu Lys Val Lys Arg Gly Lys Arg Tyr Arg Leu Arg		
	210	215	220
	Val Ile Asn Ser Ser Glu Ile Ala Ser Phe Arg Phe Ser Val Glu Gly		
	225	230	235
15	His Lys Val Thr Val Ile Ala Ala Asp Gly Val Ser Thr Lys Pro Tyr		
	245	250	255
	Gln Val Asp Ala Phe Asp Ile Leu Ala Gly Gln Arg Ile Asp Cys Val		
	260	265	270
20	Val Glu Ala Asn Gln Glu Pro Asp Thr Tyr Trp Ile Asn Ala Pro Leu		
	275	280	285
25	Thr Asn Val Pro Asn Lys Thr Ala Gln Ala Leu Leu Val Tyr Glu Glu		
	290	295	300
	Asp Arg Arg Pro Tyr His Pro Pro Lys Gly Pro Tyr Arg Lys Trp Ser		
	305	310	315
30	Val Ser Glu Ala Ile Ile Lys Tyr Trp Asn His Lys His Lys His Gly		
	325	330	335
	Arg Gly Leu Leu Ser Gly His Gly Gly Leu Lys Ala Arg Met Ile Glu		
	340	345	350
35	Gly Ser His His Leu His Ser Arg Ser Val Val Lys Arg Gln Asn Glu		
	355	360	365
40	Thr Thr Thr Val Val Met Asp Glu Ser Lys Leu Val Pro Leu Glu Tyr		
	370	375	380
	Pro Gly Ala Ala Cys Gly Ser Lys Pro Ala Asp Leu Val Leu Asp Leu		
	385	390	395
45	Thr Phe Gly Leu Asn Phe Ala Thr Gly His Trp Met Ile Asn Gly Ile		
	405	410	415
	Pro Tyr Glu Ser Pro Lys Ile Pro Thr Leu Leu Lys Ile Leu Thr Asp		
	420	425	430
50	Glu Asp Gly Val Thr Glu Ser Asp Phe Thr Lys Glu Glu His Thr Val		
	435	440	445
55	Ile Leu Pro Lys Asn Lys Cys Ile Glu Phe Asn Ile Lys Gly Asn Ser		
	450	455	460
	Gly Ile Pro Ile Thr His Pro Val His Leu His Gly His Thr Trp Asp		
	465	470	475
60	Val Val Gln Phe Gly Asn Asn Pro Pro Asn Tyr Val Asn Pro Pro Arg		
	485	490	495
65	Arg Asp Val Val Gly Ser Thr Asp Ala Gly Val Arg Ile Gln Phe Lys		
	500	505	510
	Thr Asp Asn Pro Gly Pro Trp Phe Leu His Cys His Ile Asp Trp His		
	515	520	525

Leu Glu Glu Gly Phe Ala Met Val Phe Ala Glu Ala Pro Glu Ala Val
 530 535 540

5 Lys Gly Gly Pro Lys Ser Val Ala Val Asp Ser Gln Trp Glu Gly Leu
 545 550 555 560

Cys Gly Lys Tyr Asp Asn Trp Leu Lys Ser Asn Pro Gly Gln Leu
 565 570 575

10

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 616 amino acids
 15 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein
 20

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

25 Met Lys Arg Phe Phe Ile Asn Ser Leu Leu Leu Ala Gly Leu Leu
 1 5 10 15

Asn Ser Gly Ala Leu Ala Ala Pro Ser Thr His Pro Arg Ser Asn Pro
 20 25 30

30 Asp Ile Leu Leu Glu Arg Asp Asp His Ser Leu Thr Ser Arg Gln Gly
 35 40 45

Ser Cys His Ser Pro Ser Asn Arg Ala Cys Trp Cys Ser Gly Phe Asp
 50 55 60

35 Ile Asn Thr Asp Tyr Glu Thr Lys Thr Pro Asn Thr Gly Val Val Arg
 65 70 75 80

40 Arg Tyr Thr Phe Asp Ile Thr Glu Val Asp Asn Arg Pro Gly Pro Asp
 85 90 95

Gly Val Ile Lys Glu Lys Leu Met Leu Ile Asn Asp Lys Leu Leu Gly
 100 105 110

45 Pro Thr Val Phe Ala Asn Trp Gly Asp Thr Ile Glu Val Thr Val Asn
 115 120 125

Asn His Leu Arg Thr Asn Gly Thr Ser Ile His Trp His Gly Leu His
 130 135 140

50 Gln Lys Gly Thr Asn Tyr His Asp Gly Ala Asn Gly Val Thr Glu Cys
 145 150 155 160

55 Pro Ile Pro Pro Gly Gly Ser Arg Val Tyr Ser Phe Arg Ala Arg Gln
 165 170 175

Tyr Gly Thr Ser Trp Tyr His Ser His Phe Ser Ala Gln Tyr Gly Asn
 180 185 190

60 Gly Val Ser Gly Ala Ile Gln Ile Asn Gly Pro Ala Ser Leu Pro Tyr
 195 200 205

Asp Ile Asp Leu Gly Val Leu Pro Leu Xaa Asp Trp Tyr Tyr Lys Ser
 210 215 220

65 Ala Asp Gln Leu Val Ile Glu Thr Leu Xaa Lys Gly Asn Ala Pro Phe
 225 230 235 240

Ser Asp Asn Val Leu Ile Asn Gly Thr Ala Lys His Pro Thr Thr Gly
 245 250 255
 5 Glu Gly Glu Tyr Ala Ile Val Lys Leu Thr Pro Asp Lys Arg His Arg
 260 265 270
 Leu Arg Leu Ile Asn Met Ser Val Glu Asn His Phe Gln Val Ser Leu
 275 280 285
 10 Ala Lys His Thr Met Thr Val Ile Ala Ala Asp Met Val Pro Val Asn
 290 295 300
 Ala Met Thr Val Asp Ser Leu Phe Met Ala Val Gly Gln Arg Tyr Asp
 305 310 315 320
 15 Val Thr Ile Asp Ala Ser Gln Ala Val Gly Asn Tyr Trp Phe Asn Ile
 325 330 335
 Thr Phe Gly Gly Gln Gln Lys Cys Gly Phe Ser His Asn Pro Ala Pro
 340 345 350
 20 Ala Ala Ile Phe Arg Tyr Glu Gly Ala Pro Asp Ala Leu Pro Thr Asp
 355 360 365
 25 Pro Gly Ala Ala Pro Lys Asp His Gln Cys Leu Asp Thr Leu Asp Leu
 370 375 380
 Ser Pro Val Val Gln Lys Asn Val Pro Val Asp Gly Phe Val Lys Glu
 385 390 395 400
 30 Pro Gly Asn Thr Leu Pro Val Thr Leu His Val Asp Gln Ala Ala Ala
 405 410 415
 Pro His Val Phe Thr Trp Lys Ile Asn Gly Ser Ala Ala Asp Val Asp
 420 425 430
 35 Trp Asp Arg Pro Val Leu Glu Tyr Val Met Asn Asn Asp Leu Ser Ser
 435 440 445
 40 Ile Pro Val Lys Asn Asn Ile Val Arg Val Asp Gly Val Asn Glu Trp
 450 455 460
 Thr Tyr Trp Leu Val Glu Asn Asp Pro Glu Gly Arg Leu Ser Leu Pro
 465 470 475 480
 45 His Pro Met His Leu His Gly His Asp Phe Phe Val Leu Gly Arg Ser
 485 490 495
 50 Pro Asp Val Ser Pro Asp Ser Glu Thr Arg Phe Val Phe Asp Pro Ala
 500 505 510
 Val Asp Leu Pro Arg Leu Arg Gly His Asn Pro Val Arg Arg Asp Val
 515 520 525
 55 Thr Met Leu Pro Ala Arg Gly Trp Leu Leu Leu Ala Phe Arg Thr Asp
 530 535 540
 Asn Pro Gly Ala Trp Leu Phe His Cys His Ile Ala Xaa His Val Ser
 545 550 555 560
 Gly Gly Leu Ser Val Asp Phe Leu Glu Arg Pro Asp Glu Leu Arg Gly
 565 570 575
 65 Gln Leu Thr Gly Glu Ser Lys Ala Glu Leu Glu Arg Val Cys Arg Glu
 580 585 590
 Trp Lys Asp Trp Glu Ala Lys Ser Pro His Gly Lys Ile Asp Ser Gly

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Leu Lys Gln Arg Arg Trp Asp Ala
610 615

5

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

- 10 (A) LENGTH: 573 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

20 Gln Gln Ser Cys Asn Thr Pro Ser Asn Arg Ala Cys Trp Thr Asp Gly
1 5 10 15
Tyr Asp Ile Asn Thr Asp Tyr Glu Val Asp Ser Pro Asp Thr Gly Val
20 25 30
25 Val Arg Pro Tyr Thr Leu Thr Leu Thr Glu Val Asp Asn Trp Thr Gly
35 40 45
Pro Asp Gly Val Val Lys Glu Lys Val Met Leu Val Asn Asn Ser Ile
50 55 60
30 Ile Gly Pro Thr Ile Phe Ala Asp Trp Gly Asp Thr Ile Gln Val Thr
65 70 75 80
Val Ile Asn Asn Leu Glu Thr Asn Gly Thr Ser Ile His Trp His Gly
35 85 90 95
Leu His Gln Lys Gly Thr Asn Leu His Asp Gly Ala Asn Gly Ile Thr
100 105 110
40 Glu Cys Pro Ile Pro Pro Lys Gly Gly Arg Lys Val Tyr Arg Phe Lys
115 120 125
Ala Gln Gln Tyr Gly Thr Ser Trp Tyr His Ser His Phe Ser Ala Gln
130 135 140
45 Tyr Gly Asn Gly Val Val Gly Ala Ile Gln Ile Asn Gly Pro Ala Ser
145 150 155 160
Leu Pro Tyr Asp Thr Asp Leu Gly Val Phe Pro Ile Ser Asp Tyr Tyr
50 165 170 175
Tyr Ser Ser Ala Asp Glu Leu Val Glu Leu Thr Lys Asn Ser Gly Ala
180 185 190
55 Pro Phe Ser Asp Asn Val Leu Phe Asn Gly Thr Ala Lys His Pro Glu
195 200 205
Thr Gly Glu Gly Glu Tyr Ala Asn Val Thr Leu Thr Pro Gly Arg Arg
210 215 220
60 His Arg Leu Arg Leu Ile Asn Thr Ser Val Glu Asn His Phe Gln Val
225 230 235 240
Ser Leu Val Asn His Thr Met Cys Ile Ile Ala Ala Asp Met Val Pro
65 245 250 255
Val Asn Ala Met Thr Val Asp Ser Leu Phe Leu Gly Val Gly Gln Arg
260 265 270

CLAIMS

1. A method of constructing a variant of a parent *Coprinus* laccase, which variant has laccase activity and improved
5 stability as compared to said parent laccase, which method comprises

i) analysing the structure of the parent *Coprinus* laccase to identify at least one amino acid residue or at least one
10 structural part of the *Coprinus* laccase structure, which amino acid residue or structural part is believed to be of relevance for altering the stability of the parent *Coprinus* laccase (as evaluated on the basis of structural or functional considerations),

15

ii) constructing a *Coprinus* laccase variant, which as compared to the parent *Coprinus* laccase, has been modified in the amino acid residue or structural part identified in i) so as to alter the stability, and, optionally,

20

iii) testing the resulting *Coprinus* laccase variant with respect to stability.

2. The method according to claim 1, wherein the structural part
25 to be modified is at the type I Cu site or at the type III Cu site.

3. A variant of a parent *Coprinus* laccase, which comprises a mutation in a position corresponding to at least one of the
30 following positions in SEQ ID No. 1:

W125,

Y134,

Y126,

Y170,

35 M75, and/or

M477.

4. A method of constructing a variant of a parent *Coprinus*-like

laccase, which variant has laccase activity and improved stability as compared to said parent laccase, which method comprises

- i) comparing the three-dimensional structure of the *Coprinus* laccase with the structure of a *Coprinus*-like laccase,
- ii) identifying a part of the *Coprinus*-like laccase structure which is different from the *Coprinus* laccase structure and which from structural or functional considerations is contemplated to be responsible for differences in the stability of the *Coprinus* and *Coprinus*-like laccase,
- iii) modifying the part of the *Coprinus*-like laccase identified in ii) whereby a *Coprinus*-like laccase variant is obtained, which has an improved stability compared to the parent *Coprinus*-like laccase, and optionally,
- iv) testing the resulting *Coprinus*-like laccase variant with respect to stability.

5. The method according to claim 4, wherein, in step iii), the part of the *Coprinus*-like laccase is modified so as to resemble the corresponding part of the *Coprinus* laccase.

6. The method according to claim 4 or 5, wherein, in step iii), the modification is accomplished by deleting one or more amino acid residues of the part of the *Coprinus*-like laccase to be modified; or the modification is accomplished by replacing one or more amino acid residues of the part of the *Coprinus*-like laccase to be modified with the amino acid residues occupying corresponding positions in the *Coprinus* laccase; or the modification is accomplished by insertion of one or more amino acid residues present in the *Coprinus* laccase into a corresponding position in the *Coprinus*-like laccase.

7. The method according to any of claims 4-6, wherein the *Coprinus*-like laccase is selected from the group consisting of *Polyporus pinsitus* laccase, *Phlebia radiata* laccase, *Rhizoctonia solani* laccase, *Scytalidium thermophilum* laccase

and *Myceliophthora thermophila* laccase.

8. The method according to claim 1 or 4, wherein the parent *Coprinus* laccase is derived from a strain of *Coprinus cinereus*.

5

9. The method according to claim 8, wherein the parent *Coprinus* laccase is derived from *Coprinus cinereus* IFO 8371.

10. A variant of a parent *Polyporus pinsitus* (I) laccase, which
10 comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 2:

W107,

Y116,

Y108,

15 Y152,

M57, and/or

M328.

11. A variant of a parent *Polyporus pinsitus* (II) laccase,
20 which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 3:

W107,

Y116,

Y108,

25 Y152, and/or

M57.

12. A variant of a parent *Phlebia radiata* laccase, which
comprises a mutation in a position corresponding to at least
30 one of the following positions in SEQ ID No. 4:

W128,

Y137,

Y129,

Y137, and/or

35 M78.

13. A variant of a parent *Rhizoctonia solani* (I) laccase, which

comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 5:

W126,

Y135,

5 Y127,

Y171, and/or

M76.

14. A variant of a parent *Rhizoctonia solani* (II) laccase,
10 which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 6:

W439,

W125,

Y134,

15 Y126,

Y170, and/or

M75.

15. A variant of a parent *Rhizoctonia solani* (III) laccase,
20 which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 7:

W411,

W125,

Y134,

25 Y126,

Y170, and/or

M75.

16. A variant of a parent *Rhizoctonia solani* (IV) laccase,
30 which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 8:

W411,

W125,

Y134,

35 Y126,

Y170, and/or

M75.

17. A variant of a parent *Scytalidium thermophilum* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 9:

5 M483,
W422,
W181,
Y190,
M530,
10 Y182,
Y221,
M300, and/or
M313.

15 18. A variant of a parent *Myceliophthora thermophila* laccase, which comprises a mutation in a position corresponding to at least one of the following positions in SEQ ID No. 10:

W507,
M433,
20 W373,
W136,
Y145,
M480,
Y137,
25 Y176, and/or
M254.

19. A DNA construct comprising a DNA sequence encoding a laccase variant according to claim 3 or claims 10-18.

30

20. A recombinant expression vector which carries a DNA construct according to claim 19.

21. A cell which is transformed with a DNA construct according to claim 19 or a vector according to claim 20.

35

22. A cell according to claim 21, which is a microorganism.

23. A cell according to claim 22, which is a bacterium or a fungus.

5 24. A cell according to claim 23, which is an *Aspergillus niger* or an *Aspergillus oryzae* cell.

25. Use of a laccase variant according to claim 3 or claims 10-18 for oxidizing a substrate.

10

26. Use of a laccase variant according to claim 25 for dye transfer inhibition.

27. Use of a laccase variant according to claim 25 for
15 bleaching textiles, in particular for bleaching denim.

28. A detergent additive comprising a laccase variant according to claim 3 or claims 10-18 in the form of a non-dusting granulate, a stabilised liquid or a protected enzyme.

20

29. A detergent additive according to claim 28, which additionally comprises one or more other enzyme such as a protease, a lipase, an amylase, and/or a cellulase.

25 30. A detergent composition comprising a laccase variant according to claim 3 or claims 10-18 and a surfactant.

31. A detergent composition according to claim 30 which additionally comprises one or more other enzymes such as a
30 protease, a lipase, an amylase and/or a cellulase.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 97/00571

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: C12N 9/02 // (C12N 9/02, C12R 1:645)
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9606930 A1 (NOVO NORDISK A/S), 7 March 1996 (07.03.96) --	1-31
X	WO 9600290 A1 (NOVO NORDISK BIOTECH, INC.), 4 January 1996 (04.01.96) --	3,10-31
X	WO 9507988 A1 (NOVO NORDISK A/S), 23 March 1995 (23.03.95) --	3,10-31
X	WO 9533837 A1 (NOVO NORDISK BIOTECH, INC.), 14 December 1995 (14.12.95) --	3,10-31

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "B" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

31 March 1998

Date of mailing of the international search report

01-04-1998

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 97/00571

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9533836 A1 (NOVO NORDISK BIOTECH, INC.), 14 December 1995 (14.12.95) --	3,10-31
A	WO 9623874 A1 (NOVO NORDISK A/S), 8 August 1996 (08.08.96), see claims and the whole document --	1-2,4-9
A	Biochimica et Biophysica Acta, Volume 1292, 1996, Feng Xu et al, "A study of a series of recombinant fungal laccases and bilirubin oxidase that exhibit significant differences in redox potential, substrate specificity, and stability", page 303 - page 311, page 310 --	1-2,4-9
A	FEMS Microbiology Letters, Volume 132, 1995, Soon-ja Kim et al, "Characteristics of a laccase over-secreting mutant of Coprinus congregatus" page 177 - page 179 -- -----	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/03/98

International application No.

PCT/DK 97/00571

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	9606930	A1	07/03/96	AU	3253695 A	22/03/96
WO	9600290	A1	04/01/96	AU	2827895 A	19/01/96
				CA	2193070 A	04/01/96
				EP	0767836 A	16/04/97
				FI	965201 A	21/02/97
				US	5667531 A	16/09/97
WO	9507988	A1	23/03/95	AU	7833694 A	03/04/95
				BR	9407511 A	07/01/97
				CA	2171288 A	23/03/95
				CN	1133067 A	09/10/96
				EP	0719337 A	03/07/96
				FI	961250 A	18/03/96
				JP	9503126 T	31/03/97
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				EP	0763115 A	19/03/97
WO	9533836	A1	14/12/95	AU	2656595 A	04/01/96
				CA	2191718 A	14/12/95
				EP	0765394 A	02/04/97
				FI	964808 A	02/12/96
WO	9623874	A1	08/08/96	AU	4483496 A	21/08/96
				CA	2211316 A	08/08/96
				EP	0808363 A	26/11/97

SCHEDULE A

PRODUCTS PRODUCED BY EB:

Schedule A - EB Enzyme Prices										
Prices are Prices to Arancia include duty delivered										
Enzyme	Description	Unit	Argo	Stockton	Winston	San Juan	Cardinal	London	Port	Comment
UltrapHLo II or alternative	Low pH, low calcium alpha amylase	lb	\$ 1.05	\$ 1.10	\$ 1.05	\$ 1.12	\$ 1.15	\$ 1.13	\$ 1.14	Bulk for Argo & Winston
Ultradex 990-CP	Blend glucoamylase and pululanase	liter	\$ 3.90	\$ 4.00	\$ 3.90	\$ 3.75	\$ 4.08	\$ 4.00	\$ 4.07	Bulk for Argo & Winston
Ultradex 990 HC	Concentrated Ultradex 990 CP	liter				\$ 4.99				
G-Zyme IMGI	Immobilized glucose isomerase	lb	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.60	\$ 5.06	\$ 5.06	\$ 5.05	At 300 Units/g

PRODUCTS PRODUCED BY GENENCOR:

Delivered Prices in US \$/kg		
Product	Package	US & Canada Locations Mexico
Liquefaction Enzymes		
SPEZYME® FRED	Tankers	\$1.75
	Drum or Tote	\$1.92
		\$2.12
SPEZYME® FRED L		
	Tankers	\$1.55
	Drum or Tote	\$1.72
		\$1.92
Saccharification Enzymes		
OPTIMAX® 4060 VHHP	Tankers	\$3.79
	Drum or Tote	\$3.96
		\$4.16
GC137		
	Tankers	\$2.64
	Drum or Tote	\$2.81
		\$3.01
OPTIMAX® 7525 HP		
	Tankers	\$3.19
	Drum or Tote	\$3.36
		\$3.56

OPTIDEX® I. 400 Glucosylase	Tankers	\$3.04	
	Drum or Tote	\$3.21	\$3.51
OPTIMAX® I. 1000 Debrancher	Drum or Tote	\$7.60	\$7.80
Glucose Isomerase			
GENSWEET® IGI SA	Notes 1 & 2	\$17.50	\$17.70
GENSWEET® IGI HF	Notes 1 & 2	\$25.00	\$25.20
GENSWEET® IGI VHF	Notes 1 & 2	\$29.17	\$29.37

Notes

- The prices on immobilized glucose isomerase are based on activity. The prices above are calculated at 210 GIGIC/g for IGI SA, 300 for IGI HF and 350 for IGI VHF. The ship price shall be adjusted to reflect the release activity of the particular production lots -- for example, a shipment of product at 270 GIGIC/g would invoice at $(270/300) \times \$25.00$ or \$22.50 per kg. The availability of a complete range of activities allows plant flow rates to be accurately customized.
- The immobilized products are available in 500 kg bulk bags, and 25 kg fiber drums.
- All products are food grade and kosher.
- Shipment of drums or totes is in full truck loads. Freight assumes 16 totes containing 1200 kg each will fit into a truck.
- All Products to be invoiced and paid in U.S. Dollars.
- Invoices for products shipped to Mexico shall be net 45 days.
- Invoices for products shipped to the U.S. and Canada shall be due net thirty (30) days, with an additional fifteen (15) day grace period. No interest shall be charged until after expiration of such grace period, and in the event that Supplier elects to charge interest on any past due amount thereafter, that interest shall be charged at 1% per month, unless prohibited by law. No interest shall be charged on any amount regarding which Buyer has raised a good faith dispute. Payments shall be made by electronic transfer.
- For shipments to Mexico, any actual increase or decrease in tax, duty or governmental charge becoming effective and payable or recognized by the Supplier after the Effective Date hereof because of the sale or shipment of products, will be added to or subtracted from the price herein specified. Any increase or decrease in freight rates paid by Supplier on shipments to Mexico after the Effective Date hereof will be added to or subtracted from the price herein specified. Price adjustments for freight rates in any twelve month period shall be limited to +/- 10% of the freight component of the price existing prior to the adjustment. Supplier recognizes that any additions may trigger Production Cost review by Buyer. There shall be no increase or decrease in prices for shipments in the U.S. and Canada.

SCHEDULE B

PRODUCTS PRODUCED BY EB:

Schedule B - EB Enzyme Prices										
Prices are delivered Prices to Arancia include duty										
Enzyme	Description	Unit	Argo	Stockton	Winston	San Juan	Cardinal	London	Port	Comment
G-Zyme G-997	Alpha amylase	lb					\$ 1.50		\$ 1.49	
Maltamyl G	Alpha amylase for maltose	lb					\$ 2.35			
Maltamyl L	Alpha amylase for maltose	lb	\$ 2.35							
Maltamyl LF	Alpha amylase for maltose	lb	\$ 3.25							
pHlozyme	Alpha amylase to reduce traces of starch	lb						\$ 5.43		
G-Zyme G990 SP	Glucosamylase	liter					\$ 3.13			
G-Zyme G 990 200	Glucosamylase	liter	\$ 2.20							

FOR PLANTS THAT ARE NOT CURRENTLY USING THESE ENZYMES THE PRICES ON THE ABOVE TABLE WILL BE ADJUSTED BY DIFFERENTIAL FREIGHT COST BETWEEN BELOIT AND THE PLANT

PRODUCTS PRODUCED BY GENENCOR:

Product	Delivered Prices in US \$/kg	
	Package	US & Canada Locations Mexico
Other Enzymes		
	Drum or Tote	\$11.50 \$11.70
	Drum or Tote	\$10.75 \$10.95

SPEZYME DBA Diastatic Beta Amylase	Drum or Tote	\$10.75	\$10.95
SPEZYME LT 75 Low Temp. AA	Drum or Tote	\$2.45	\$2.65
OPTIDEX L-300 Glucosylase	Drum or Tote	\$2.95	\$3.15

Notes

- The prices on immobilized glucose isomerase are based on activity. The prices above are calculated at 210 GIGIC/g for IGL SA, 300 for IGL HF and 350 for IGL VHF. The ship price shall be adjusted to reflect the release activity of the particular production lots -- for example, a shipment of product at 270 GIGIC/g would invoice at $(270/300) \times \$25.00$ or \$22.50 per kg. The availability of a complete range of activities allows plant flow rates to be accurately customized.
- The immobilized products are available in 500 kg bulk bags, and 25 kg fiber drums.
- All products are food grade and kosher.
- Shipment of drums or totes is in full truck loads. Freight assumes 16 totes containing 1200 kg each will fit into a truck.
- All Products to be invoiced and paid in U.S. Dollars.
- Invoices for products shipped to Mexico shall be net 45 days.
- Invoices for products shipped to the U.S. and Canada shall be due net thirty (30) days, with an additional fifteen (15) day grace period. No interest shall be charged until after expiration of such grace period, and in the event that Supplier elects to charge interest on any past due amount thereafter, that interest shall be charged at 1% per month, unless prohibited by law. No interest shall be charged on any amount regarding which Buyer has raised a good faith dispute. Payments shall be made by electronic transfer.
- For shipments to Mexico, any actual increase or decrease in tax, duty or governmental charge becoming effective and payable or recognized by the Supplier after the Effective Date hereof because of the sale or shipment of products, will be added to or subtracted from the price herein specified. Any increase or decrease in freight rates paid by Supplier on shipments to Mexico after the Effective Date hereof will be added to or subtracted from the price herein specified. Price adjustments for freight rates in any twelve month period shall be limited to +/- 10% of the freight component of the price existing prior to the adjustment. Supplier recognizes that any additions may trigger Production Cost review by Buyer. There shall be no increase or decrease in prices for shipments in the U.S. and Canada.